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COVER STORY

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CIO

VOLUME 9, NUMBER 14

COVER STORY

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Enter the Power Elite

Whom do you follow to become a leader? The paradoxical question makes sense for the CIO eager to swing open the doors to the executive suite.

By Christopher Koch

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Cover photo by
Katherine Lambert

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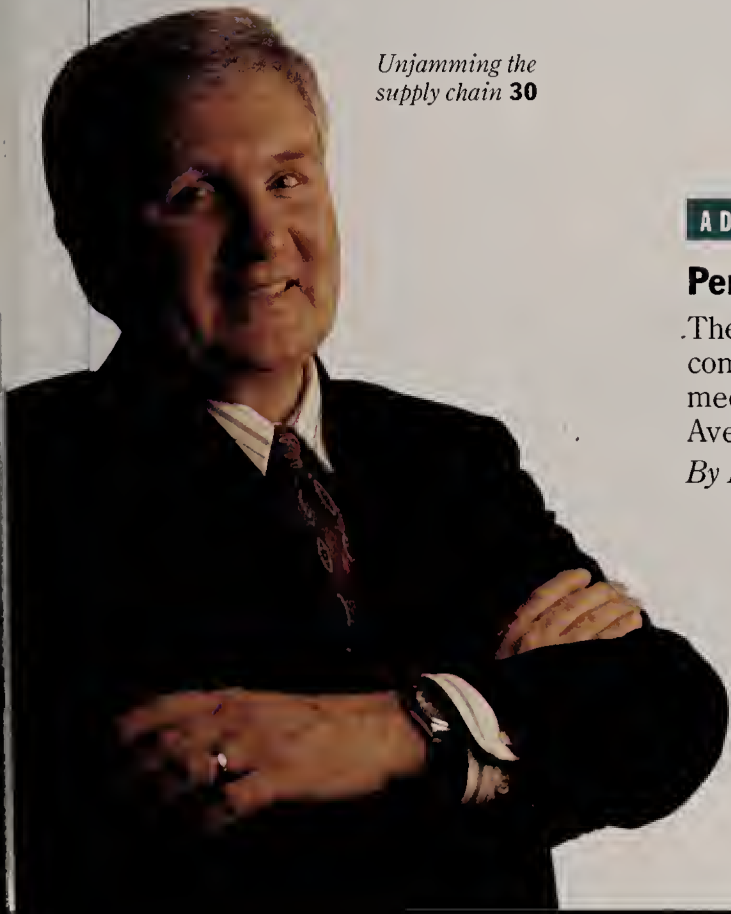
To Everything, Turn, Turn, Turn

Intercompany IT and increasing trust enable cheaper, faster inventory turns in a variety of industries.

By Mickey Williamson



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By Peter Fabris

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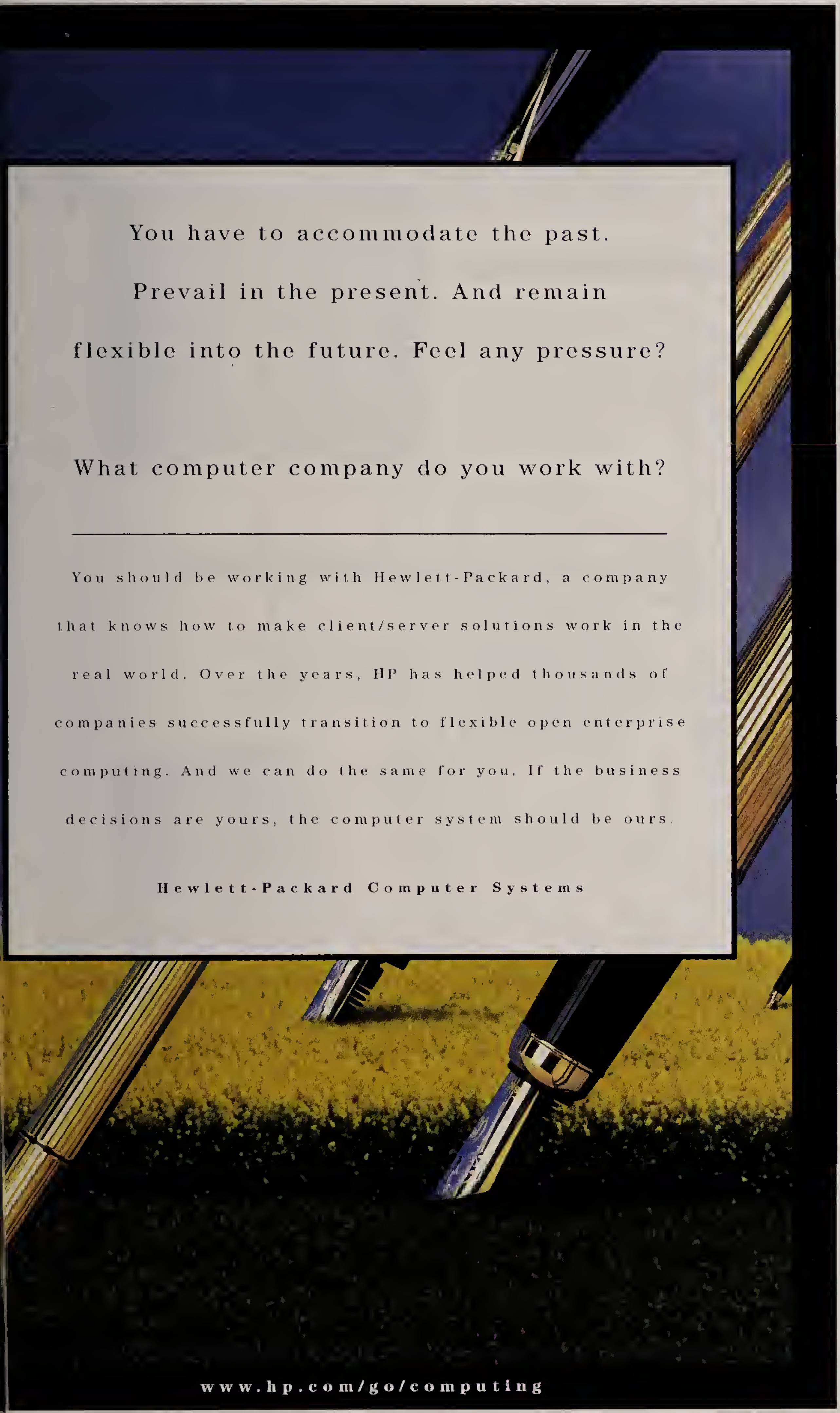

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Just Do It All

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CIO'S WITH BIG SYSTEMS EITHER MAKE HISTORY... OR THEY ARE HISTORY.

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I've been talking to a lot of CIOs this week, trying to get a handle on your key concerns and how *CIO* might better address them. Two things stand out as especially pressing: change management (and the cultural aspects of change) and the need to stay on top of emerging technologies.

Neither of these concerns comes as much of a surprise. We all know change is tough. The decision to make a change may be relatively easy, and we often have a goal we believe is worth the struggle. But there's a whole big complicated mess between point A and point B that few of us want to think about until we're up to our hips in it.

Change isn't about decisions; it's about influencing staff to behave in ways they may not be comfortable with. It's about communicating a vision to inspire people beyond their natural inclinations (and doing this repeatedly, with each inevitable setback). It has more to do with politics and psychology than it does with technology—or with business strategy, for that matter. It requires skills with which many IS executives—particularly those who have come up through the technical ranks—are not abundantly endowed. But don't despair; such skills *can* be learned (please see "Enter The Power Elite," Page 42).

While IS executives with technology backgrounds struggle to deal with change management, many CIOs with business backgrounds find it difficult to stay abreast of the flood of emerging technologies. Yet someone has to do it. For some organizations (high-tech companies in particular), technology is such a key strategic concern that the someone is usually the CEO or the CIO. But even if keeping up with emerging technologies is not in the CIO's job description, it *is* a critical competency in any IS group.

IS executives handle such technology monitoring in different ways. Some appoint a trusted lieutenant to stay current with the latest trends, vendors and products. Others make keeping up with technology a required part of every employee's job. The important thing is to establish a formal and reliable mechanism for having that information communicated to you and other key executives.

How do you handle these issues at your company? Would you like to see more coverage of change management and emerging technologies in *CIO*? You can reach me at *lundberg@cio.com* or by phone at 508 935-4731.

Abbie Lundberg

Editor

CIO

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LETTER FROM THE PUBLISHER

PHOTO BY WEBB CHAPPELL

> *"In a weird way, these CIOs are like politicians with a platform trying to get the rest of the party to support that platform. They have to be very good at selling their ideas."*
>
> *–Jay Conger*
> *Chairman, Leadership Institute*
> *University of Southern California*

We all look to leaders in our lives. The baseball player looks to his coach for the signal to steal or stay on base. Students look to their teachers for knowledge. The violinist looks to her conductor for the cue to begin. Leaders are everywhere, offering guidance and setting examples.

Because technology management is becoming increasingly important in achieving enterprisewide corporate objectives, CIOs must start taking on leadership roles within these organizations to ensure that IT is a well-integrated component of company growth. Unfortunately, many CIOs are not familiar with or adept at this cross-functional leadership role. They need to acquire and develop the specific skills to become an effective leader.

What is an effective leader? In "Enter the Power Elite," on Page 42, Senior Writer Christopher Koch describes such a person as someone with "motivating energy" and a strong focus on the future. CIOs can develop and fine-tune these talents at various training programs. The article cites a number of schools and training seminars geared toward helping executives polish their leadership skills and acquire the confidence to become successful leaders and mentors. The role of leader may not come as second nature to many CIOs, but leadership training and personal determination will help CIOs emerge as influential leaders in shaping corporate growth.

P.S. The first WebMaster Perspectives conference will take place Aug. 11-14 at the Westin St. Francis Hotel in San Francisco. Meet and network with executives facing similar business challenges and opportunities and learn how to effectively conduct business for profit on the World Wide Web. For more information, please call 800 355-0246 or visit our Executive Programs pages on the Web at *http://www.cio.com/conferences/proghome.html*.

Coming In CIO

Under the Sea

Connecting England and France by digging a tunnel under the North Sea was a monumental task for Eurotunnel, the joint venture consortium behind the plan. Eurotunnel had no predecessors to offer guidance, and creating systems to support the tunnel posed its own unique challenge. Now, after years of development, Eurotunnel takes on the integration of its financial systems.

Down with Downsizing

For organizations beset by competitive pressures, downsizing and reengineering are often natural reactions. But Robert Cross has a better way. As CEO of consulting company Aeronomics Inc., Cross is one of the foremost proponents of using revenue management principles to boost corporate profits and performance. Cross talks to *CIO* about what revenue management can do for companies in general and IS departments in particular.

Excellent Venture

In the spring of 1995, MasterCard International embarked on an ambitious plan to build a data warehouse to deliver purchasing data to the desktops of member banks. Within 150 days, MasterCard moved from identifying a competitive business need to rolling out a beta version of its service. *CIO* will explore how MasterCard evaluated vendors, built and populated a new data warehouse, added a front end, and tested, debugged and finally delivered the service to its first group of customers.

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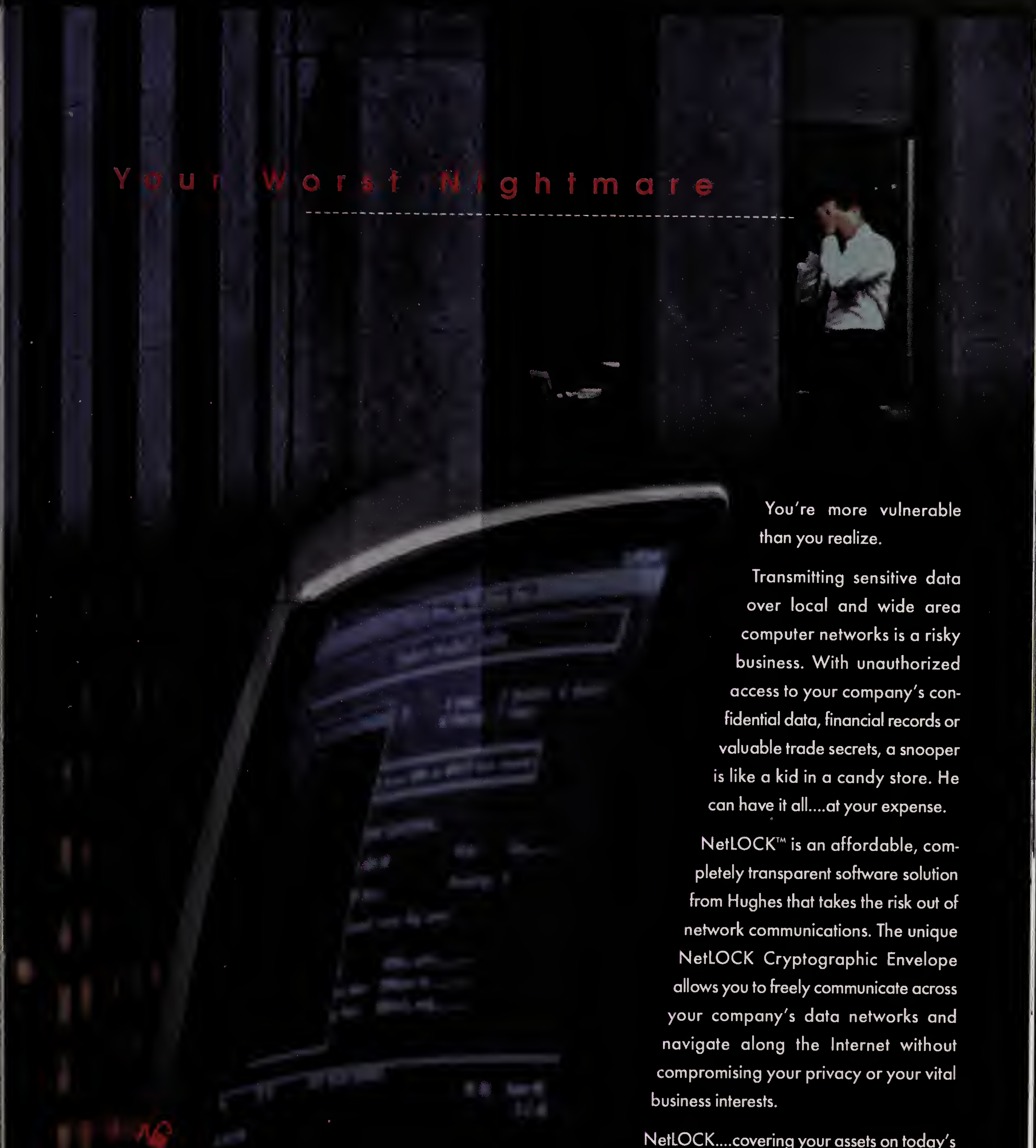

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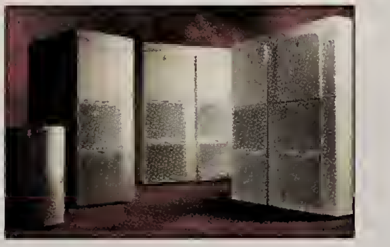

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[2] International Data Corporation "The Unix Systems Market," September, 1995.

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TRENDLINES

ETHICS AUDITS

THE MORAL MINORITY

Scan a typical performance review and you're unlikely to find a line item that reads, "Did the right thing."

Even if such an item could be checked off, few employees would consider it a boon to their careers. In a 1994 study of 30 Harvard Business School graduates, more than half said companies are willing to overlook lapses in ethical behavior in the name of hitting the numbers, whereas employees who point the finger at an errant boss or co-worker are likely to be shunned or perhaps even forced out. A typical comment from respondents: "In every organization, someone's been screwed for standing up."

If companies aren't exactly seeing red over the ethics issue, however, they are at least beginning to see green. Companies often pay dearly when employees break the law, and they risk paying more in federal fines if they lack employee programs designed to foster respect for the law. It's not surprising, therefore, that an entire industry has sprung up to advise companies on how to do enough, ethically speaking, to escape punishment from the feds.

Tim Bell and Larry Ponemon, who are building an ethics consulting practice at international accounting and consulting firm KPMG Peat Marwick LLP, would like to help companies push beyond the "golden rule" basics, such as crisis help lines and corporate ethics codes, to help create "moral organizations." "What we've found is that the corporate codes aren't targeted to the real ethical dilemmas of the people in the trenches," says Bell, executive director of the KPMG Business Ethics Institute in Montvale, N.J. He and Ponemon, who is director of Business Ethics Services, perform "ethics vulnerability assessments" with clients in core processes, such as finance or order management, to determine the specific temptations facing employees. For example, they might ask purchasing personnel how many gifts they turned down from vendors in the past year. No-no's are codified and made part of the company's job training to help prevent future wrongdoing.

But to make the lessons stick, Bell says, employees should be given responsibility for solving ethical dilemmas rather than simply being warned to steer clear of them. "If, instead of sending employees a memo that says, 'Don't do that,' management tells them they are accountable for solving the problem, employees will see that management is really serious," says Bell. Measuring and rewarding ethical behavior in the review process is another important step. Companies can then track the shift in "ethical climate" by periodically asking employees whether they fear punishment for finger pointing. "Holding managers accountable for managing the 'yes' responses downward can make a big difference," says Bell. Finally, he says, periodic "ethics reviews" by outside organizations—such as Peat Marwick, for example—demonstrate corporate commitment to ethics and offer an opportunity to improve the process of defining and implementing corporate ethical guidelines—for a fee, of course.

–Christopher Koch

> **"An opinion is worth 50 IQ points."**
>
> **–Alan Kay,**
> *Apple Fellow*

The information marketplace will grow to 20 percent of the country's GDP by 2010, up from just 10 percent today, according to *The Kiplinger Washington Letter*. The newsletter also predicts that demand for telecom jobs will rise, despite the recent AT&T layoffs.

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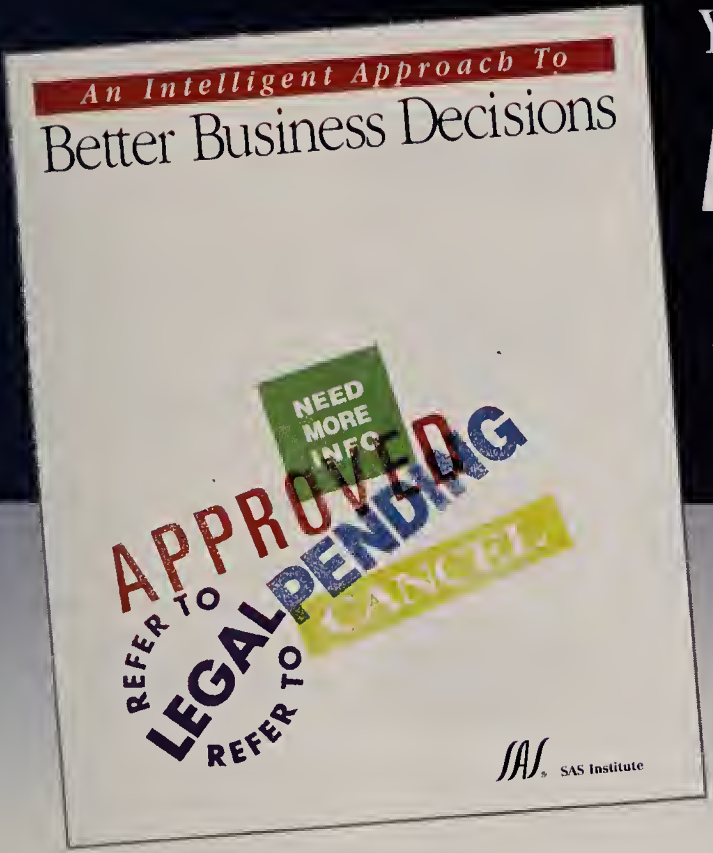

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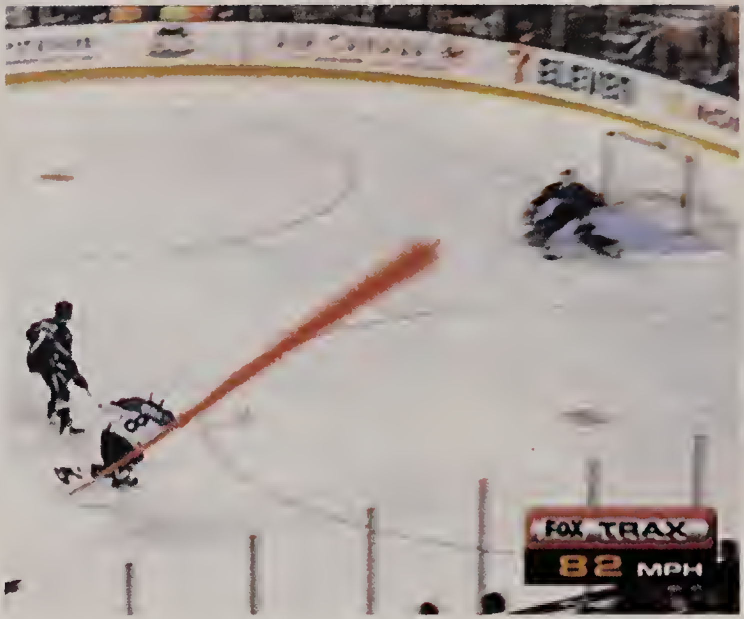


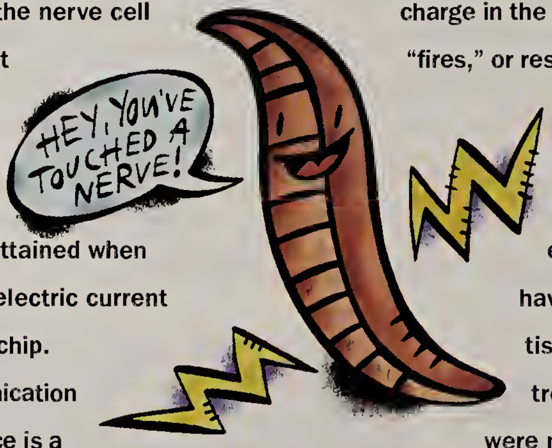
The Fox Network is trying to make certain that viewers tuned in to the National Hockey League's playoffs this spring won't have any problem following the puck, even when it's whistling past a goalie's ear at more than 100 mph. To help viewers keep up, Fox Sports is employing a new high-tech tracking system that superimposes a colored halo around the puck during play. When a shot exceeds 75 mph, the FoxTrax system places a red comet tail behind the puck so that TV viewers can easily follow its path.

Occasional hockey viewers complain that the biscuit-sized piece of vulcanized black rubber is too difficult to follow on a small television screen. By applying infrared technology to make the puck more visible, Fox hopes to entice more sports fans to witness the stick-handling artistry of Mario Lemieux, the speed and finesse of Sergei Federov, and the bone-jarring checks of Eric Lindros as teams battle for the Stanley Cup.

The system consists of five major components, beginning with a silver-dollar-sized circuit board embedded in each puck. Twenty infrared emitters connected to each battery-powered circuit board transmit signals to 10 sensors mounted at the top of the plexiglass surrounding the rink and six others suspended above the ice. The system measures the puck's position and speed by tracking the amount of time it takes to travel between sensors. A mobile production vehicle, the "Puck Truck," collects speed and positioning data from the sensors. A Silicon Graphics Inc. computer system analyzes the data and creates the glow, the comet tail and a digital graphic showing puck speed.

Hockey fans got a preview of the glowing puck when Fox tested the system during the NHL All-Star Game on Jan. 20. Viewer reaction was mostly positive, although some hard-core fans found it distracting, says Fox Sports spokesman Lou D'Ermilio. The network continued to tweak FoxTrax as the season progressed; when the system returned on March 31, the puck gleamed a bright white instead of the blue hue it assumed during the All-Star Game, and the comet tail was shortened. "It's a work in progress," says D'Ermilio. The network has just one Puck Truck, so technicolor pucks glow only on Fox's main telecast—not regional games—through the playoffs. If audience ratings rise this spring, particularly in areas beyond the sport's Northeast and Midwest strongholds, Fox's experiment will have scored a winning goal. *–Peter Fabris*

ADVANCES IN THE LEECH FIELD


HEY, YOU'VE TOUCHED A NERVE!

Cut off a limb and...a silicon chip will take its place? That's the hope of a German research team that has developed a silicon chip capable of interacting with the nerve cell of a leech. This achievement by the Max Planck Institute for Biochemistry at Martinsried, Germany, follows the earlier milestone attained when scientists first transmitted electric current from a leech neuron to the chip.

Now that two-way communication has been established, science is a step closer to the day when lost limbs can be replaced with mind-controlled prosthetics—just like TV's *The Six Million Dollar Man* of the 1970s.

Developed by a team led by Dr. Peter Fromherz, the chip received worldwide attention late last summer in *The New York Times*. The real breakthrough, according to the *Times*, was the creation of a junction between a microscopic spot on the chip and a corresponding spot on the leech neuron. The chip induces an electric charge in the leech cell, which then "fires," or responds to the stimulus. Previously, scientists have stimulated muscle tissue with electricity, and they have even "bonded" live tissue and metal electrodes. But the results were not healthy for the tissue or the metal.

This successful leech experiment, which the Planck Institute team believes can be adapted to humans, could help enable a working marriage of man and machine. By the time such a knot is tied, a bionic man is bound to be worth much more than $6 million. ▬

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IDC INSIGHT

AN INDUSTRY UPDATE WRITTEN BY INTERNATIONAL DATA CORPORATION AND SPONSORED BY NOVELL, INC.

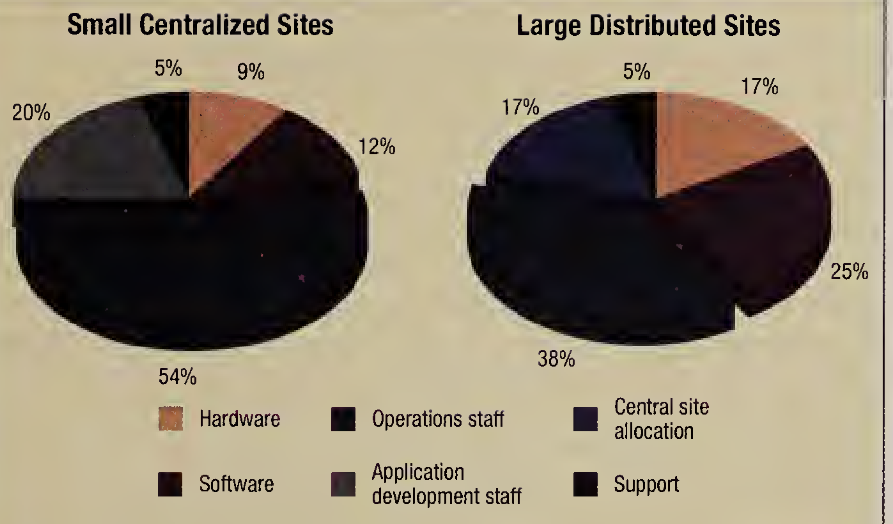
Meeting the Challenge of Client-Server Computing

Maximizing Return-on-Investment of Network Computing

The migration to client-server computing is affecting organizations both large and small almost everywhere on the planet. Computer users today have extensive access to global network-based resources, including communication gateways to other companies, individuals, and markets worldwide. Signs of this connectedness abound:

- Last year the number of LAN users worldwide hit nearly 100 million, double the number in 1993. By 1999 the number will double again
- In the same year the number of people in the world with electronic mail boxes topped 40 million. By 1999 the number will be over 125 million
- Groupware users numbered over 30 million worldwide by the end of 1995; by 1999 they will number over 250 million

Figure 1 — The Hidden Costs of Client-Server



Source: International Data Corporation, 1996

So we are heading for a wired workplace, a wired marketplace, even a wired society. However, there is a price to be paid for all this connectivity. The nearly universal implementation of client-server systems requires living with new levels of complexity and new hardware and software that people must be trained to use. Moreover, highly skilled personnel must be hired to install, manage, maintain, and administer these far-flung networks. The result is that staffing costs have become the largest contributor to total networked computing costs, regardless of the size of the installation (see Figure 1).

Until now, companies have justified the costs and complexities of client-server computing by competitive advantage–it is a very flexible and adaptable computing style. But when client-server is the norm, where will the competitive advantage lie?

IDC believes that companies that learn to manage their networked resources through technology and training will win out over their peers in the long run. Companies that understand the true costs and true benefits of client-server computing will generate quicker return for their investments. Companies that relentlessly optimize, integrate, and upgrade existing systems will stretch IT resources further and be able to reinvest sooner than competitors taking a wait-and-see approach.

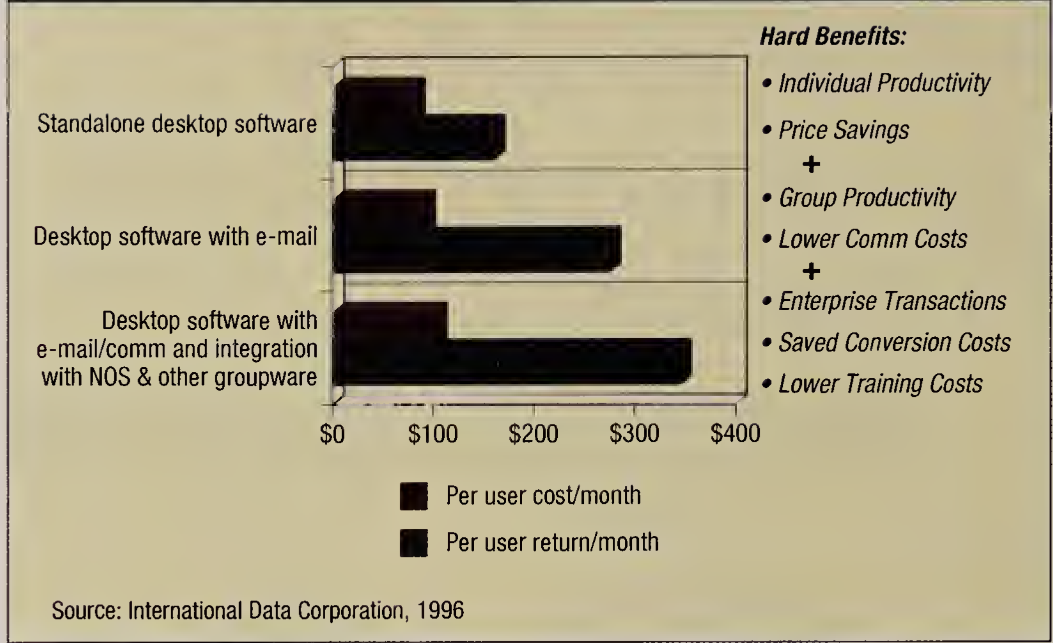
Areas of Opportunity

IDC and Novell have teamed to produce this White Paper in order to help IT managers develop a strategy for maximizing return on investment in networked computing resources. It is the executive overview of three studies researched and written by IDC and sponsored by Novell. In the research it conducted,

Driving Down Networking Costs

GroupWise:	NetWare 4:	ManageWise:
Typical annual return-per-user of 334%	On average 15% less expensive than NT Server from Microsoft	$95,784 savings in business efficiency per 100 users
Nearly $400,000 a year saved in phone costs at Farmland Foods	50% increase in users supported by a single server	50% reduction in network downtime
Courier costs cut $16,000 a year at Sheppard, Mullin, Richter & Hampton		19.7 day payback

Figure 2 — The Investment Leverage from Groupware



Source: International Data Corporation, 1996

IDC found three areas of networked computing that are focal points for ROI leverage:

1. The choice and use of communication applications such as e-mail and groupware
2. The choice and use of next-generation network operating systems
3. The use of advanced network and system management tools

In addition, IDC found that when products in support of all three of these areas work together in an integrated fashion—such as Novell's GroupWise, NetWare 4.1, and ManageWise products—benefits are compounded. Support and training costs are lower, conversions and upgrades occur faster, applications come on stream sooner, and downtime is reduced.

Applications for the Next Wave

The migration to client-server computing is a quest to provide users with access to information and computer resources beyond their desks. One of the key tools for this is groupware software, epitomized by Novell's GroupWise, software which integrates e-mail with scheduling, calendaring, and other workgroup oriented functions. The market for groupware is exploding as organizations find they can use it—specifically the e-mail function—as a platform for providing workgroup and even enterprise-wide access to information and resources.

In the research IDC conducted, almost half of the business benefits organizations received from migrating to groupware came from better internal and external communications. For instance, Farmland Foods, a $2 billion dollar meat processing company, found that since installing GroupWise, documents once faxed in 15 minutes now take less than five to e-mail. Further, the use of GroupWise saved almost $400,000 in voice phone calls a year.

Figure 2 illustrates how electronic communication and collaboration generate cascading benefits. Standalone desktop software can impact individual productivity, but when combined with e-mail, that software can improve the productivity of a whole workgroup, not just the individual user. If the e-mail is specifically designed to work with the desktop software and with the network software, as say Novell's GroupWise is with NetWare 4.1, then those workgroup benefits are compounded.

This efficiency pays real dividends. When Sheppard, Mullin, Richter & Hampton, a Los Angeles law firm, made the move to GroupWise it found the support ratio for lawyers dropped from one assistant for every two lawyers to one for every three. GroupWise scheduling cut countless hours in tasks as routine as setting up meetings; GroupWise e-mail cut courier costs by $16,000 a year.

For most companies, an investment in groupware is considered an incremental cost. The hardware is already in place, as is the network. Moreover, the support costs—which account for more than 50% of the cost of operating a networked PC—are shared across dozens of applications.

But even with all the hardware, network, and support costs amortized across the groupware software, it's a bargain. IDC's research with Novell's GroupWise customers found that a typical installation required only about $250 in fully-loaded first-year costs—less than 5% of the annual cost of operating and supporting an end-user personal computer.

For that $250 investment, those same GroupWise customers found that their first-year return was over $800 on lowered communication and clerical costs alone. Meanwhile, they accrued an array of other concrete benefits, such as fewer meetings (and thus less travel and meeting administration), easier document handling, and so on. For every single GroupWise customer interviewed by IDC, return-on-investment exceeded expectations.

Modernizing the Network

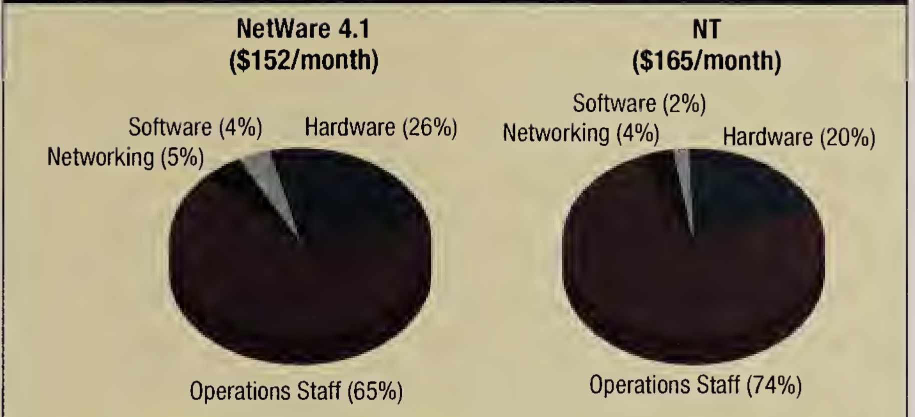
If the LAN is the heart of client-server computing, then the network operating system is its soul. As LANs have evolved from peripheral information systems to the primary components of mission-critical systems, they have become more robust and more scalable. Along the way they have also provided IS personnel with the tools to manage network resources as never before.

In fact, powerful new management capabilities are why many people are migrating to NetWare 4.1. With more than 375,000 licenses installed worldwide as of 1995, it is the most popular network operating system. Three key reasons for its popularity are:

- Greater functionality
- Improved management
- Directory services

Figure 3 illustrates how survey respondents believe migrating to NetWare 4.1 has enhanced network productivity—with ease of administration at the top of the list, mentioned by nearly 40% of respondents. NetWare 4.1's greater functionality has promoted companies' reliance on LANs and delivered on the ultimate promise of client-server—increased productivity.

Figure 4 — Network Cost-to-Use at Medium (300 User) Sites (Costs After Migrating from NetWare 3.X)

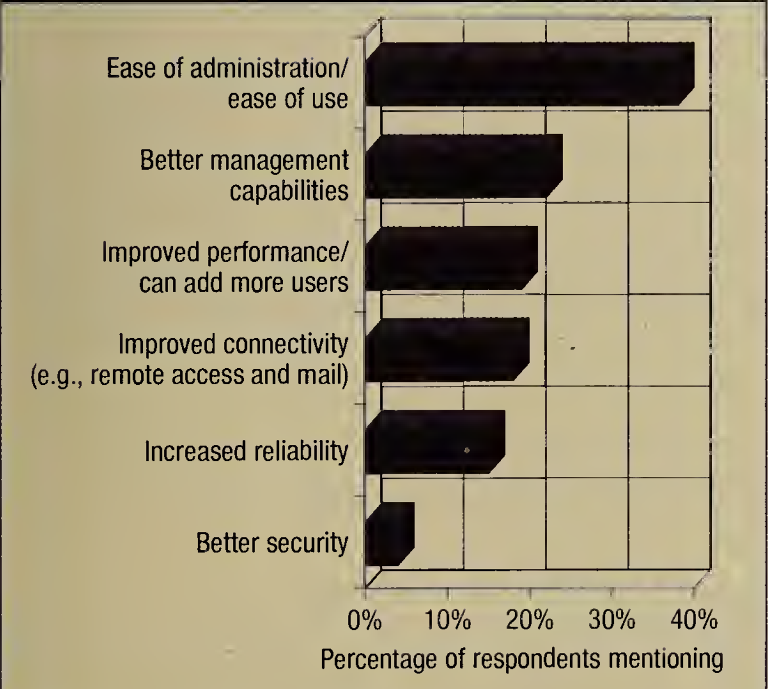


Source: International Data Corporation, 1996

According to recent surveys conducted by IDC, LAN managers report remarkable improvements in managing their networks under NetWare 4.1. Although they expected the number of nodes on their networks to grow by 260% in the 12 months following installation, they anticipated the number of file servers on the network would grow by only 163%. In other words, under NetWare 4.1, they expect to increase the ratio of users per server from 41 to 60—an improvement of 50%.

In addition to increasing the number of users per server, NetWare 4.1 provides a single point of administration with Novell Directory Services (NDS) that results in a lower cost of network administration. Figure 4 shows how, in medium-sized sites, NetWare 4.1 generates 14% lower network administration costs than Microsoft NT, primarily by increasing the user to support staff ratio.

Figure 3 — How NetWare 4.1 Improves Network Productivity



Source: International Data Corporation, 1996

Novell and other networking companies have set their sights on developing new technologies that will make tomorrow's networks more efficient and flexible. Novell has developed a Smart Global Network strategy, which entails making the network available to anyone—anytime, anywhere. An essential component of the Smart Global Network is Novell Directory Services (NDS), which enables companies to keep track of and connect all of a network's users, workgroups, hardware and software on one common access and administrative framework. NDS provides directory services technology that can handle the management of countless resources on heterogeneous systems spread around the globe. Also fundamental to Novell's vision of the future is an open set of application programming interfaces (APIs) that will make it easy to incorporate NDS and other NetWare 4 networking services into distributed applications.

Providing End-to-End Network Management

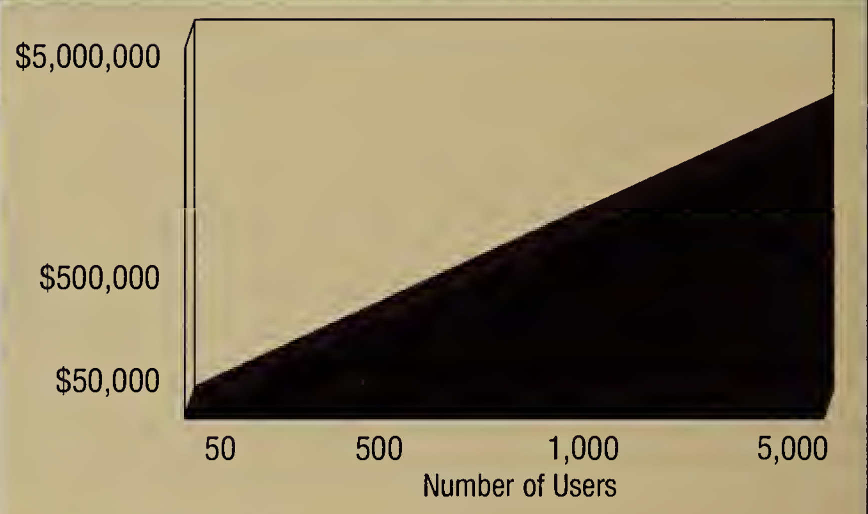
Staffing costs and end-user productivity are the issues that keep IS managers awake at night. And that has never been more true than it is today. As networks expand and intertwine, the critical success factors for network managers will include:

- Increasing network uptime, both in operation and when installing new users or applications
- Increasing efficiency by supporting rapid network growth without commensurate growth in staff
- Increasing responsiveness, fixing problems in a way that minimizes idle time for users or within business processes

To meet these needs, Novell offers ManageWise. It combines both network management and PC administration into a single, integrated package. Previously, most PC administration and LAN management products worked independently of one another, each requiring dedicated staff and resources.

ManageWise is the integrated solution that offers a single view of the network. It provides analysis tools for understanding bottlenecks; permits the configuration, inventory, and diagnostics of PCs from a single local or remote site; and provides tools for monitoring and managing remote and local servers. IDC's research demonstrates that even small and medium-sized companies can achieve significant cost savings by implementing ManageWise (see Figure 5). Network managers found that the most significant gains in efficiency were realized in server operation and help desk functions. Using ManageWise also increased LAN manager responsiveness. Before implementation, only 30% of network or end-user problems could be solved from a central site; afterwards, that number rose to 60%. This is especially important for companies with highly decentralized operations.

Figure 5 — Average Annual Savings From ManageWise



Source: International Data Corporation, 1996

Since the software-licensing, maintenance, and training costs of a product like ManageWise are low compared to the number of users potentially affected, the return on investment can be surprisingly high. Across the survey base polled by IDC, ManageWise paid for itself on average within 19.7 days.

For every 100 users, implementing integrated management with ManageWise saved $95,784 annually. These savings are attributable to the following:

- More efficient systems management, including an increase of 33% in the number of servers and 25% in the number of PCs a staff person can support, and a decrease in travel of 53%, leading to annual cost savings of $14,500
- Significant reductions in the time required to perform key management tasks—such as five hours in moves and changes, nine hours in server maintenance and configuration, seven hours in help desk and support, four hours in problem tracking, three hours in printer maintenance, etc.—saving $30,844 annually
- Dramatic reductions in network downtime (over 50%) due to network outages, delays addressing problems at the desktop, or time spent installing and configuring applications, generating annual savings of $50,440

Cost-Savings and Client-Server: They Aren't Mutually Exclusive

Believe it or not, return on investment in networking can be quantified. While it may sometimes seem that networks are growing out of control, vendors like Novell are in fact working diligently to develop products for simplified, easily managed local, wide-area, and global networks. Because of the strategic and financial advantages of networking wherever systems reside and users roam, organizations will be forced to expand the reach and complexity of their networks simply to remain competitive.

Astute companies will concentrate on migrating to client-server computing in ways that maximize both the resources available to run networks and the effectiveness of those who ultimately generate revenues and profits—namely, end users.

Call to Action

This is an executive overview of a three-part series of White Papers entitled:

- Novell GroupWise: Leveraging Desktop and Network Investments
- Novell NetWare 4.1: Reducing Cost of Ownership
- Novell ManageWise: Maximizing Returns on Networking Investments

For a free copy of the Novell Business Advisor containing tools that help you assess return on investment with NetWare, MangeWise, and GroupWise, as well as electronic versions of the IDC White Papers, call 1-800-665-4586 or visit either the Novell home page at http://www.roi.novell.com or the IDC home page at http://www.idcresearch.com

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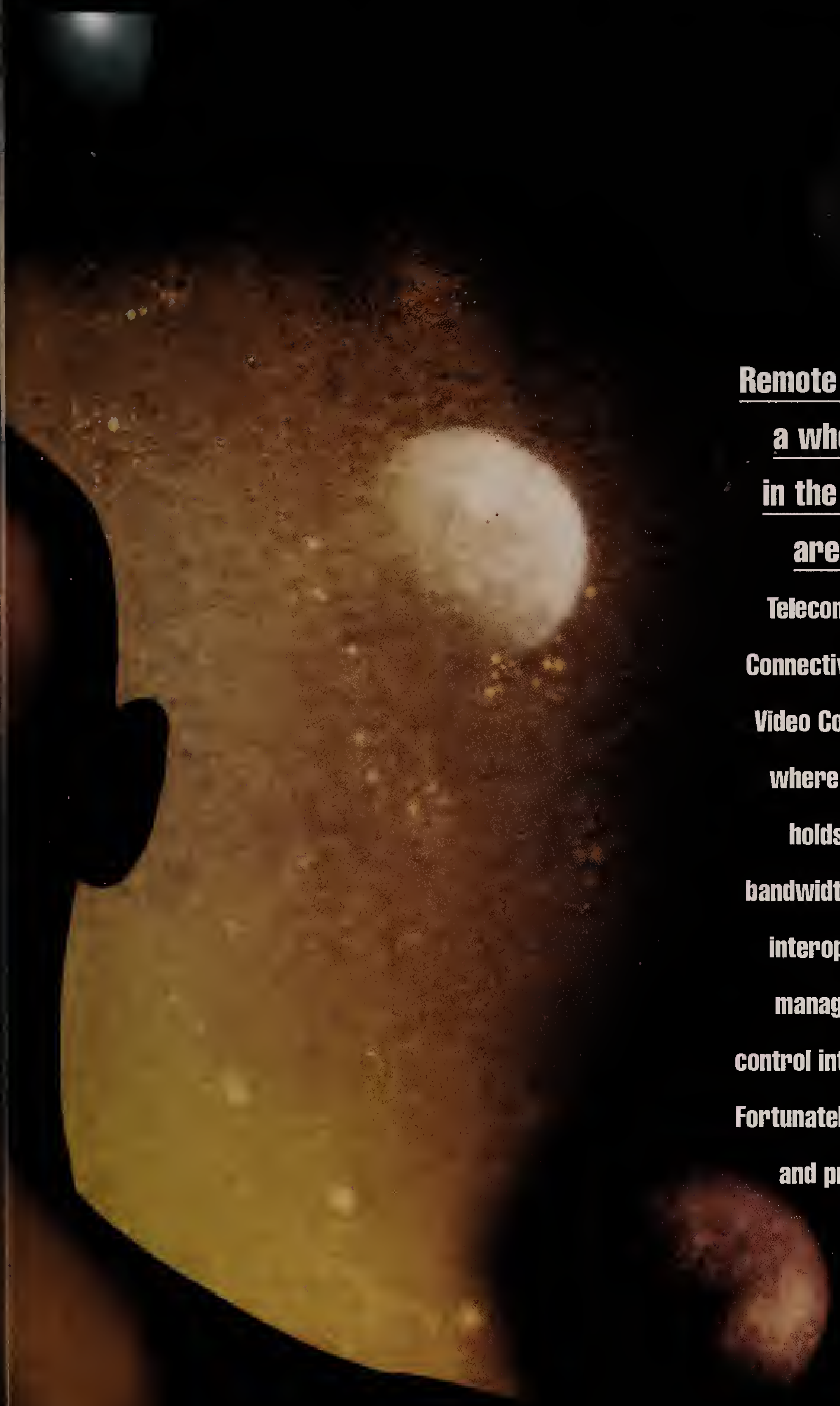

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CUSTOMER SERVICE

KIOSK, KIOSK IN THE MALL

Sometimes the personal attention of a sales clerk is the last thing shoppers want. Sales associates who don't know their stuff—or those, for example, who pressure you into buying a souped-up dishwasher in avocado when they don't have the basic white model in stock—are likely to send shoppers running for the exits. A new generation of multimedia kiosks from IBM Corp., however, may help make the shopping experience more fruitful for both shopper and retailer alike.

The kiosks, currently being developed under the direction of IBM Corp.'s U.S. Multimedia Consulting & Services division, were designed to improve the relationship between businesses and customers by offering greater interactivity, information and convenience.

The idea is for a retailer such as, say, Sears Roebuck and Co.(which, according to *Investor's Business Daily*, is exploring the technology) to introduce interactive kiosks in its appliance departments. Customers could use the kiosks to look at any size, model, color or brand of appliance they choose, even though those options might not be stocked or on display in the showroom. The stores, meanwhile, can offer customers more with the option of physically displaying less, and they can collect detailed information on their customers' buying habits. The kiosks also would enable salespeople to concentrate less on introducing customers to products and instead spend more time offering post-sale information and service. The same principles would apply to automobile sales, furniture purchases—virtually any retail transaction.

The technology is not especially new. Even the much-maligned U.S. Postal Service is exploring kiosks as a means of offering better access to government services and information. But the application of such media as CD-ROMs, online systems and interactive television give IBM's new kiosks better means to meet the needs of both businesses and customers.

Already, Trump's Castle Casino Resort in Atlantic City, N.J., is using IBM-

ILLUSTRATION ABOVE BY MARK S. FISHER; BELOW BY SCOTT MATTHEWS

Fire Safety

10 tips for terminating an employee who isn't meeting performance expectations:

1. Continually coach each employee on his or her performance against expectations. Give honest feedback, identifying areas that need improvement.

2. When performance is not satisfactory, discuss the issue immediately with the employee. Don't wait, hoping things will improve.

3. Document all disciplinary discussions. Give the employee a copy of each report and have him or her sign the file copy.

4. Have the employee evaluate his or her own performance, then compare the supervisor's evaluation with the employee's. Address inconsistencies promptly. Leave no room for such excuses as "Nobody told me" or "You didn't say anything, so I thought it was OK."

5. Encourage a "big picture" perspective so that the employee can see the current position as one step on a larger career path.

6. Be very clear about your standards and the need for everyone to meet or exceed them. Set an example yourself.

7. Perform the termination quietly. Keep the action confidential until it's done. Even then, do not discuss with others why the employee was terminated.

8. During the termination interview, meticulously review all the steps leading to the termination. Make it clear that your decision is well thought-out, not capricious.

9. Recognize that the employee is a good person but not suited for the job at hand. Help the employee "save face" among co-workers after firing.

10. Offer assistance in planning the next steps in the employee's career. Consider using outplacement professionals to support the transition process.

SOURCE: ROGER E. HERMAN, CERTIFIED MANAGEMENT CONSULTANT AND AUTHOR OF *TURBULENCE! CHALLENGES AND OPPORTUNITIES IN THE WORLD OF WORK* (OAKHILL PRESS, AKRON, OHIO, 1995)

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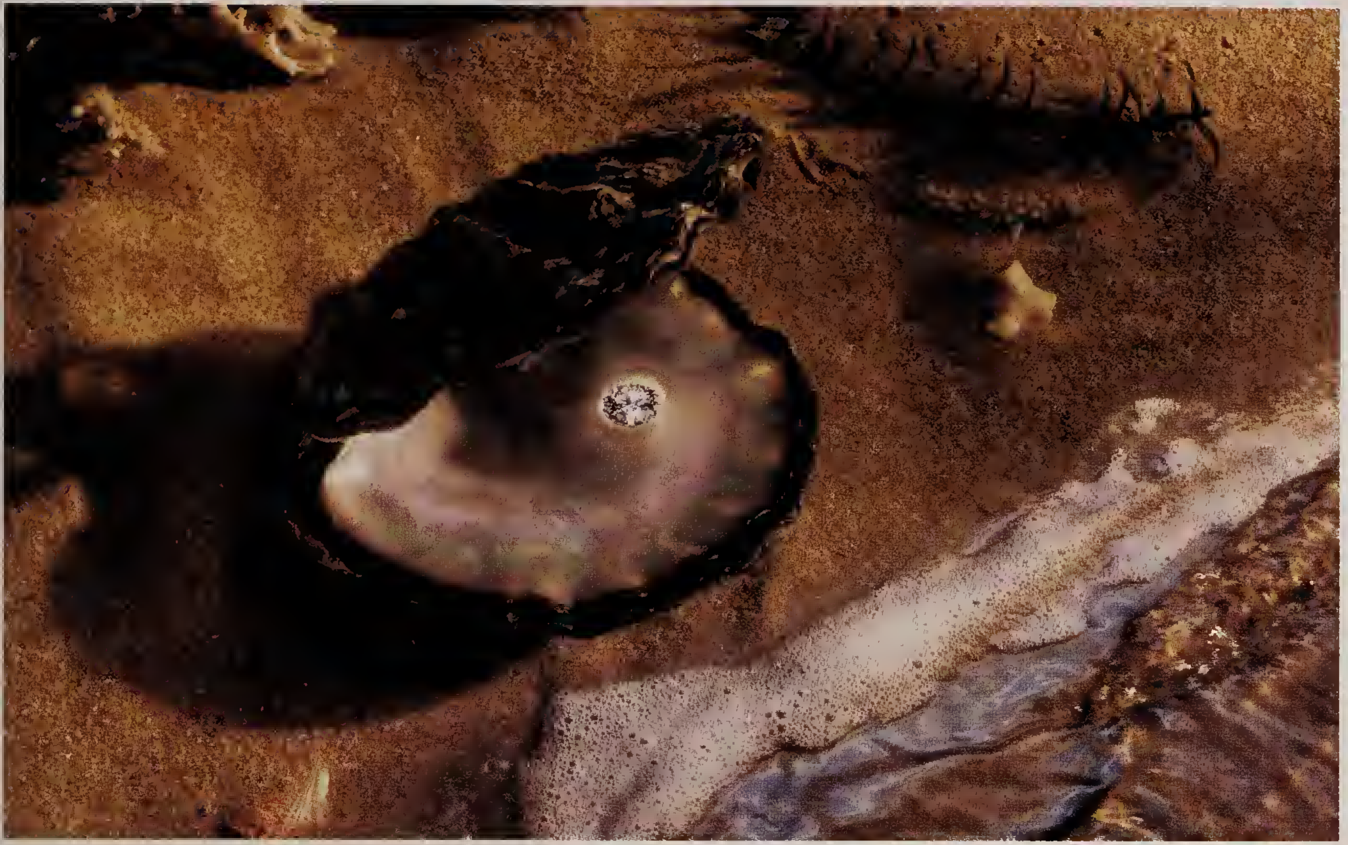

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REMOTE ACCESS	#1

Source: Recently published reports from Dataquest, IDC, and/or Dell'Oro Group.

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People connect with us

TRENDLINES

developed kiosks in its casino to help customers track their winnings (or losses, as the case may be). Seven kiosks have been in place since November 1995, according to a Trump spokesman, and they have been a hit with customers and staff alike.

"They absolutely love them," says Rick Tony, vice president of administration and IS. "Customers are able to use these kiosks to determine how much cash they've earned or how many dining comps they've earned. Before, they had to go to the staff for this information."

With the kiosks in place, the staff can address other customer service needs, Tony says, adding that the kiosks have enabled the casino to eliminate some staff positions after they became vacant by attrition. "We still have staff out there to issue comps," Tony says. "We're not taking away that option. But frankly I think our customers like having this information in their own control."

Before the kiosks were introduced, Trump's officials were concerned about whether the casino's older customers would embrace the new technology. They have. The 17-inch monitors, bright colors and large print have helped make the kiosks a success with older players.

"We're already talking about our next application [of kiosks]," Tony says. Casino managers are now considering kiosks enabling customers to make their own hotel and dinner reservations.

IBM sees this new generation of kiosks as just one step toward a new era of electronic retailing. "First the enterprise supply chain and then the retail transaction will become totally electronic," predicts Daniel J. Sweeney, vice president of consulting services for the IBM distribution industry solution unit, in his report, "A New Era for Retailing: An IBM Perspective."

"Next, the operational components of the transaction will be made more efficient; then electronic technology will eventually be applied to customer service," Sweeney says. "These applications will be developed and perfected in stores where people will continue to shop. Only when consumers see, believe and have confidence in the promise of interactivity will they shop electronically."

–Tom Field

JUST FOR OPENERS

The Iron Curtain lifted and the Berlin Wall came tumbling down, but barriers still preclude smooth electronic communications in Central and Eastern Europe and in former Soviet republics farther east. To help remedy the situation, the Open Society Institute (OSI) of New York is offering grants to individuals and organizations throughout that part of the world through its Regional Internet Program. The goal is to provide comprehensive, affordable e-mail and Internet access to the region, where information technology has historically been unavailable or underfunded.

Schools, libraries, medical institutions and media are among the potential recipients targeted by the Regional Internet Program, which began in 1994 under the auspices of OSI Founder George Soros, an international financier and philanthropist who supports a 24-nation network of foundations.

In its first year, the program planted seed money that in 1995 spawned the development of networking strategies—and a network of networking advocates—throughout the region. Nearly $4 million was budgeted for the program in those two years, and, according to Jonathan Peizer, director of international IS and Internet services, the venture has grown so large that the OSI is weighing the prospect of establishing an independent philanthropic Internet initiative.

Telecommunications infrastructures, which vary from country to country, pose one of the biggest challenges to the program. Where high-speed leased lines and fiber-optic cables are unavailable, the Internet program is developing connections through satellites, ham radio, cable television and microwave technology.

For more information, visit the OSI Web site (*http://www.soros.org/index.html*) or contact Peizer at *jpeizer@sorosny.org*. ■

Customer service, computer skills and **safeguarding information** are among the **most important** and frequently performed **activities** in today's **workplace,** according to the 1995 National Job Analysis Study funded by the U.S. departments of Education and Labor. The study surveyed 12,000 workers in 6,000 organizations.

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Think Tank

BY TOM DAVENPORT

Information Behavior Management—The New IBM

A **COUPLE OF YEARS AGO,** I became fixated on a concept that will, I believe, be key to our future. It involves no MIPS, no bandwidth, no silicon. I call it "information behavior," or how we behave relative to information. While millions of high-tech entrepreneurs and bureaucrats work 16-hour days to improve information technology, virtually no one works on information behavior. How we search for, organize, share, attend to or ignore information is already the key limiting factor of the InfoAge, and it's only going to get worse.

At the moment, we are generally ignorant of information behavior and its consequences. A couple of examples may be useful. I recently spoke with managers of a Notes-based knowledge-sharing system at a large consulting firm. The system now has hundreds of thousands of documents and discussions that are available to anyone who wants to peruse them. I asked how often the consultants were expected to refer to the system and how long one should spend on it. "We don't know." Are the consultants who access the system more successful with their clients? "Good question." Are consultants taught how to use the system in their work? "Well, we try to teach them Notes."

At a large computer company, an impressive companywide Web information base contains all the information the salespeople could ever need to sell a computer. Again, no one knew what type of information behaviors were being used with the system or even what kinds of behaviors were desirable. No one knew if using the system helped sell more computers or at what point spending time online hindered spending time with customers.

Use and Abuse

The most fundamental information behavior is information use (or nonuse). Other than learning how to read and use the dictionary, we're not taught much about this. We know intuitively that, at some point, we have to stop seeking information and act or decide on the matter at hand. With so much more information at our fingertips, has that point changed? Can we become addicted to information? My university has just begun a counseling program for students who are addicted to the Internet. Is this the corporate future as well?

I am less worried about too much information use than too little. Most American managers and professionals don't spend enough time reading or searching online for information related to their jobs and businesses. Europeans are better at it; Japanese are better still. Our culture discourages information gathering: If you want to get fired from a U.S. corporation, let your boss catch you reading a book at your desk.

Our culture is also not particularly good at information sharing. We're happy to chat, but don't ask us to write a conference trip report or a summary of our most recent product development project. As Peter Drucker has noted for years, as soon as we get a piece of information we should think, "With whom should I share this?" Yet we don't consider sending or answering e-mail to be real work. Power and politics often get in the way of sharing information: "If I keep this to myself, maybe it will get me promoted." Of course, we all know people who share too much information, whether verbally, on pa-

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The Web and the Internet have transcended surfing and chat groups to become incubators of serious commercial innovation. Pioneering enterprises are busily hatching the future of wired and interactive business conduct. Only some of these experiments will prove to be successful and profitable.

The critical challenge for organizations will be to identify the right business models for exploiting the external Web and to develop suites of Intranet applications that enhance employees' effectiveness and help businesses compete and prosper in new ways.

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Don Tapscott, President, New Paradigm Learning Corporation and Author, *The Digital Economy: Promise and Peril in the Age of Networked Intelligence,* will moderate the *WebMaster Perspectives* program and set the stage for our discussions.

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On Monday and Tuesday, a series of concurrent sessions provided by our corporate hosts will be available. Participants can attend multiple concurrent sessions.

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Senior Fellow
The Discovery Institute

KENNETH HILL
Global Online Business
Development Manager
Dell Computer Corporation

TIM HORGAN
Webmaster
CIO Communications, Inc.

ANDY GREENAWALT
Vice President
Information Services, Americas
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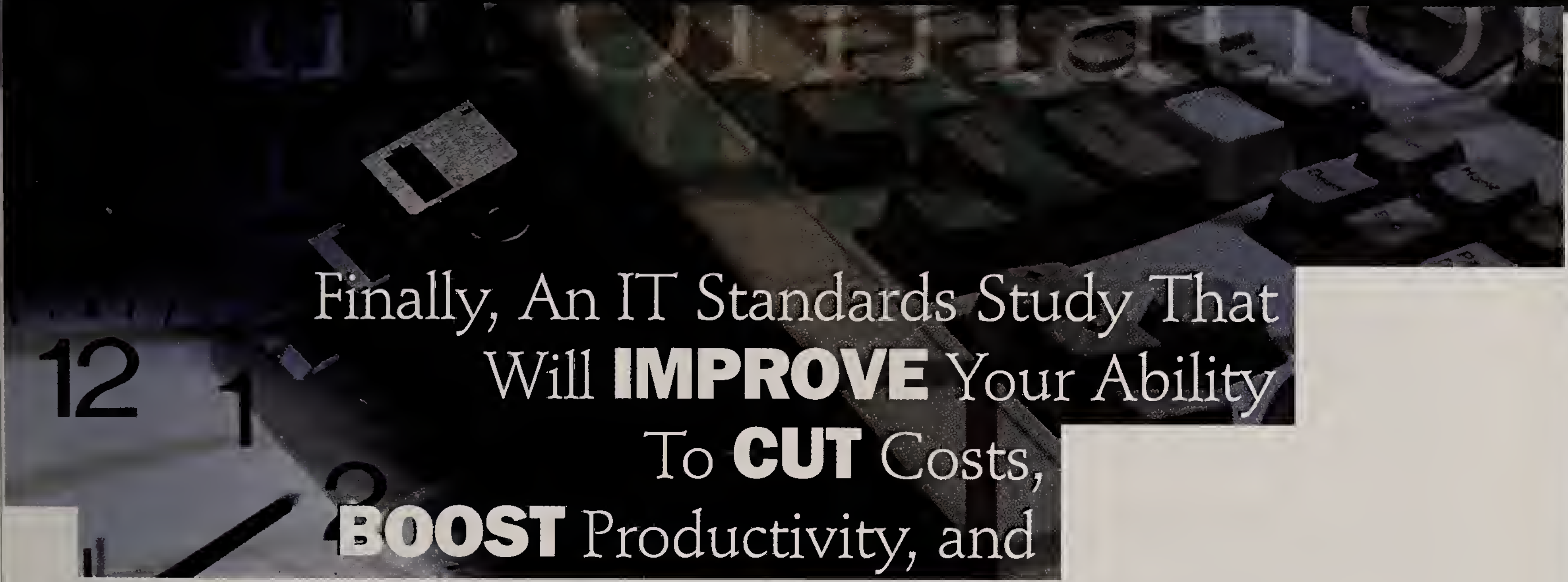

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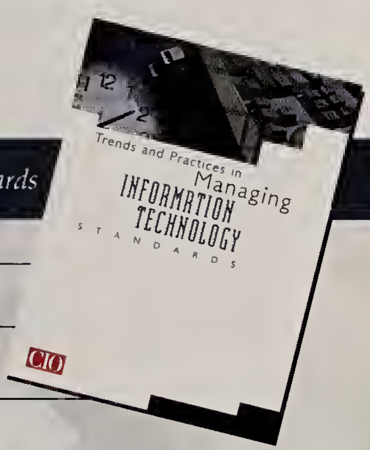

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per or electronically. Most organizations don't have norms for when to share and when to hoard. As a result, our in-boxes are filled with things that could be called information but don't inform very well.

Behavior versus Technology

Information behaviors can also go a long way toward addressing some very tough technical problems. All the data models, database technologies and huge integrated packages in the world won't work without cooperative information behavior. In 1996, a departmental manager who wants to establish his or her own database of customers, products, suppliers, etc., can do so. The technologies are available and cheap. The tack we must take is to persuade these people that replicating existing information—even when it creates a better information environment for that department—is verboten.

Conversely, when our technology-derived information is poorly integrated, information behavior can ride to the rescue. Allen Lee and Michael Wybo, two IS academics, once observed that a university student accounts clerk was not simply entering and outputting data but rather constructing meaning out of incomplete or incorrect information on each screen. She was actually playing a key information integration role. Lee and Wybo argue that it is folly to ignore human capabilities for information integration. A perfect technical information environment may be our objective; in the meantime, it is the intelligence of humans that makes imperfection workable.

Managing Your Piece of the PIE

Most of us need advice on how to manage our personal information environments, or PIEs. We've all heard the statistics that the average executive spends 82 frustrated minutes per day searching for information. I, for one, am dying to know the optimal combination of pink message slips, Filofax, handheld digital organizer, desktop organizer, paper files and scanned, electronically filed documents. (I am also highly suspicious of clean desks. Did you see that news item pointing out that companies are more profitable when their senior managers have messy desks?)

The lack of information behavior norms is more of a problem in this era of information overload and downsizing. Should we really expect our workers to spend an hour on voice mail and e-mail at home every night, and then read a few memos, articles and *The Wall Street Journal* in bed? The workaholic with these information behaviors used to be portrayed as an obsessive lunatic; now it's becoming standard procedure.

A PERFECT TECHNICAL information environment may be our objective; in the meantime, it is the intelligence of humans that makes imperfection workable.

Information behavior also involves how we display and present information. Some smart person once said that attention is the currency of the information age. We get more currency when we figure out how to get information receivers to pay attention to our information. There are, or course, the usual attention-getting methods, such as graphics, color and humor. All of these pale in comparison, however, to actually being involved with the information yourself. When Nike wants its marketers to understand the information about what shoes are desired on playgrounds, it doesn't hand them focus group transcripts; it sends them out to play basketball.

CIOs and Information Behavior

Let's assume that everything I've said is spot on and information behavior is the lodestone for success in information management. What should the CIO do about it? If you're really going to claim to be the Chief, it seems to me that you should address this critical but unmanaged issue. For starters, it might be nice to have some sense of what kinds of information behaviors your organization needs and what it has today. Just giving some serious thought to this matter would put you in the 95th percentile of information behavior management.

Once you've figured out your behavioral desiderata, the usual methods—education, examples, incentives—apply. Consider an education program on "Working and Managing in an Information-Rich Environment." Have your CEO send a memo saying that he doesn't plan to access voice mail on vacation and doesn't expect you to either. Willem (Wim) Roelandts, formerly the head of Hewlett-Packard Co.'s computer systems division and now the CEO at Xilinx Inc., used to send out e-mails suggesting that employees stop working all the time and get a life.

Rewarding your people for using and sharing information and punishing them for not adopting these traits should be a big help. One enterprising knowledge manager I recently met gives out free airline miles to early users of a knowledge base he has developed. Perhaps a set of policies on when and how to use electronic mail would also be of benefit.

As an egocentric friend once said to me, enough of my opinions; now I'd like you to tell me what you think of my opinions. Send me an e-mail at the address below and tell me whether you think information behavior is more important than client/server, object-oriented technology and Really Fast Ethernet. This will have the virtue of getting you involved in this particular bit of information and will also let me know if I am crackers. If I don't reply to your message, it's because my parents raised me with poor information behavior. CIO

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*Thomas H. Davenport is a professor and director of the Information Management Program at the University of Texas at Austin. He welcomes reader comments at*Tdav@notes.bus.utexas.edu.

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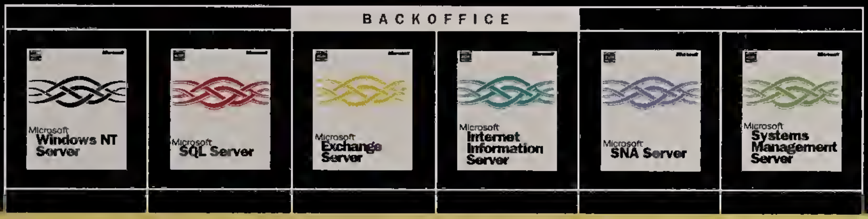
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GIRARD LIBERTY *"Without information technology you can't get very far in CRP. We're a key part of the team."*

To Everything, Turn, Turn, Turn

Intercompany IT and increasing trust enable cheaper, faster inventory turns in a variety of industries

BY MICKEY WILLIAMSON

BY MANAGING STOCKS IN THE STORES and warehouses of many of its customers, The Procter & Gamble Co. of Cincinnati has reduced its inventory by 15 percent over the past two years. Not that P&G is stuffing everyone else's warehouses to keep its inventories down; its customers are storing smaller quantities of goods, too. Since inventory ties up money, both supplier and customers are happy. "We are taking up less space in our warehouse, saving storage costs and reducing the cost of capital," says Gary Watson, director of logistics at Hannaford Bros. Co., a retail grocery chain and P&G customer with headquarters in Scarborough, Maine.

To obtain these benefits, Hannaford has sacrificed some of its corporate privacy. Under an arrangement called continuous replenishment of product (CRP), P&G has ready access to Hannaford's sales and inventory data for P&G products. In a CRP arrangement, suppliers keep track of what items are moving off retailers' shelves and send replacements as supplies dwindle to ensure that store stocks remain at predetermined levels.

Success in inventory management is measured in improved service levels and in "turns," the number of times annually that the entire inventory is replenished. The higher the number of turns, the less time stock gathers dust as illiquid inventory. "Typically, when we start one of our customers on CRP we can double their inventory turns and significantly improve retail in-stock conditions," says Ralph Drayer, P&G's vice president of product supply for customer business development.

CRP is part of a grocery industry initiative called efficient consumer response (ECR) that involves nearly 50 percent of the grocery industry, according to a June 19, 1995 report in *Supermarket News*. When the huge consumer products chains began to take hold some 15 years ago, smaller companies realized that "in order to survive and thrive they would have to create greater flexibility, become more innovative, and operate at greater speed, says Richard Kravchuk, a manager specializing in supply chain management and performance measurement at Ernst & Young LLP in New York. "These were the key drivers that led them to tune their supply chain."

Monitoring product chains may just turn out to be that elusive productivity solution that allows everyone to win. In the apparel industry a similar practice is known as vendor managed inventory (VMI). In health care and hard goods manufacturing the practice is called just-in-time inventory management (JIT). Regardless of the initials, this technology-heavy practice of giving suppliers access to sales data is the latest wrinkle in supply chain management, designed to deliver raw materials and finished products to where they are needed as close as possible to when they are needed.

By all accounts, the practice depends heavily on the ready availability of accurate data, which in turn requires reliable communications. CIOs have a key role to play in making the system work. "Without information technology you can't get very far in CRP. We're a key part of the team," says Girard Liberty, director of information ser-

PHOTO BY JAY REED

JIM SWOBODA: *Thanks to a new point-of-sale reorder system, the grocery, frozen food and dairy inventory of Spartan Stores turns over 20 times each year.*

PHOTO BY STEVEN BENSON

vices at Welch Foods Inc. in Concord, Mass. Andrew White, product director of supply chain planning solutions at American Software USA Inc. in Atlanta, adds, "CIOs can act as quiet, backdoor catalysts, recognizing changes required in existing systems and getting new systems in if they are needed."

The emphasis differs slightly from one industry to the next, but the ultimate goal is to keep the consumer happy in a buyer's market. Reaching that goal often requires keeping shipping and inventory costs down and maintaining in stock what the customer came to buy—no mean feat in stores that must handle thousands or even millions of stockkeeping units (SKU).

> *When we start one of our customers on CRP we can double their inventory turns and significantly improve retail in-stock conditions.*
>
> *– Ralph Drayer*

In the grocery industry, where competition is based largely on price, CRP's primary function is to reduce warehousing and inventory costs. Having every possible item in stock is a secondary concern because a shopper unable to find a specific item in a supermarket is likely to purchase either the same item in a different package size or simply try another brand. But for a clothing store, the cost of being out of stock of a particular item can be high. If a shopper searches in vain for a specific color, size or style, she is likely to search for the exit; the store that disappointed her may never see her again.

The heart of VMI or CRP is an agreement between the manufacturer and the warehouse or retail outlet on target inventory levels and the percentage of customer requests that the retailer should be able to fulfill. Something less than 100 percent fulfillment is the norm. "To fill every order you'd need to have a very high level of warehouse inventory, so you might say that 97.5 percent or 99 percent fulfillment of orders is satisfactory," says Peter Harding, vice president of Atlanta-based management consulting company Kurt Salmon Associates Inc., which specializes in the retail and consumer goods industry.

The needs and purposes of inventory control differ yet again in the automobile industry, where some 5,000 to 7,000 parts may be required to build a single vehicle. Chrysler Corp. in Auburn Hills, Mich., requires suppliers to hook in electronically to keep track of the company's production schedules and supply the needed parts to the factory on time. Paper is out. "You can't rely on people poring through reams of records to make sure all the parts are there at the right time," says Jon Maples, Chrysler's executive director of material supply. Roughly 90 percent of Chrysler's inventory is delivered on a just-in-time basis, no more than four hours before it is needed. Split-second timing has its benefits. "Last year, according to our cost of goods sold, we freed up about $700 million in cash," Maples says.

JIT has a slightly different flavor in the health-care industry, a sector under extreme pressure to trim costs. Instead of abiding by the conventional hospital supply process, in which bulk orders are placed weekly or monthly and delivered to hospital warehouses, Baxter Healthcare Corp., a vendor in Deerfield, Ill., now sends supplies daily to nursing floors and clinic offices as they are needed. (Baxter Healthcare's parent company, Baxter International

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Inc., was a 1995 CIO-100 winner for best practices in supply chain/logistics. See *CIO*, August 1995.) "Baxter's warehouse becomes the hospitals' off-site storage area," says Richard Gius, vice president of business systems.

While customers see benefits in lower storage costs and improved availability of goods, vendors expect to gain by matching production to consumption. Storing raw materials and finished goods ties up capital and incurs warehousing expense. Instead of encouraging retailers to stockpile products in return for trade discounts and special pricing, Welch's uses information technology "to understand consumers' wants and needs as well as buying and economic trends," Liberty says. VMI driven by consumer demand has become widespread in many retailing environments.

JOHN MAPLES: *"Last year, according to our cost of goods sold, we freed up about $700 million in cash."*

PHOTO BY JON MURESAN

Welch's goal is to build relationships with retailers in order to manage entire product categories—bottled juice, frozen concentrates and jelly—as strategic business units. Serving as category manager encourages a longer-term focus in marketing and merchandising. Liberty says, "A good category manager can influence product design, packaging, variety, placement in the store and promotion."

Because many grocery chains have their own category managers, those who want to get into the business of managing categories must establish a high level of trust and integrity; category managers don't last long if they play favorites among vendors.

Customers are most likely to trust a manufacturer who leads the field. "You won't become a category manager if you don't have a leading role. Beyond that, you've got to show that you have the support, the cross-functional team and the technology to make it happen," Liberty says.

A host of applications is required to manage another company's stock: decision support systems, promotion and pricing models, software to determine arrangement on store shelves, forecasting tools, EDI systems and continuous replenishment applications. Much of the CRP software in use today had its origins at P&G, where the effort began 10 years ago. Today, with 40 percent of P&G's sales volume handled by the CRP system, "the expense of installing the system, the personnel that

Alpha-Bits

Abbreviations are as plentiful as SKU numbers in supply chain terminology. Often, members of one industry don't know the terminology of the others. Here's how to sort it out:

CM: Category Management
Keeping track of sales and inventory for several competing products. In the grocery business, industry leaders perform this service for competitors' products as well as their own.

QR: Quick Response
Soft goods industry IT initiative to shorten cycle time in manufacturing and ordering by linking suppliers and retailers in an enterprise.

ECR: Efficient Consumer Response
Grocery industry initiative with the same goals as QR.

VMI: Vendor Managed Inventory
Apparel industry technology to monitor retailers' inventories and replenish stock.

CRP: Continuous Replenishment of Product
Grocery industry equivalent of VMI.

JIT: Just-In-Time Inventory Management
System most commonly applied to heavy manufacturing concerns, whereby units are delivered within hours of when they're needed.

–M. Williamson

needed to be trained, the EDI linkages and the computer support are more than paid for by the efficiencies generated," says Drayer. In 1994 P&G sold its CRP software to IBM subsidiary Integrated Systems Solutions Corp., headquartered in Somers, N.Y. ISSC now provides CRP service to more than 40 major manufacturers—a better than 600 percent increase achieved in the single year since it began marketing the system. ISSC says it expects to have 70 companies online by the end of this year.

Ninety percent of Chrysler's inventory is delivered on a just-in-time basis, no more than four hours before it is needed.

Proliferating inventory management systems industrywide are affecting plans for brand name manufacturers to compete with private label products and smaller retail chains and independents to compete with megachains such as Wal-Mart Stores Inc. Concerned that cut-throat competition was hurting the retail industry as a whole, Kurt Salmon Associates conceived ECR and its soft-goods industry equivalent, quick response (QR), in response to the trend toward niche marketing and the slowing growth rate of consumer purchasing. Now, according to Harding, they complement micromarketing or one-to-one marketing.

Before the advent of QR and ECR, relationships between manufacturers and retailers were most often characterized by mutual distrust. Each transaction was approached as a zero-sum game, with success measured by the winner's one-time profit, Harding says. No thought was given to the wider impact on either side of the transaction, let alone how well the consumer was ultimately served. Today, executives in every link in the supply

The Perfect Fit

One apparel maker uses VMI to enable sales reps to act as consultants to retailers

Many clothing makers manage their customers' inventories, but New York-based Henry I. Siegel Co. Inc., maker of Chic and H.I.S jeans, has raised vendor managed inventory (VMI) to the level of a fine art. In addition to monitoring retailers' stock movement and generating suggested purchase orders according to a predetermined inventory model, Siegel's VMI system allows sales representatives to act as consultants to customers whose stock isn't moving as well as it should.

The company's involvement in VMI began in 1992 with a basic inventory monitoring and purchase order suggestion system, says Diana Milstein, director of internal communications. Each store's inventory plan is loaded into the system, "down to the SKU level, and we factor in sales that we receive every week," she explains. The system also considers transit time and projected store sales to determine which products should be shipped and when. When the sales representative who serves that store approves the resulting purchase order, the system allocates picking slips, and products are packed and shipped. The goal is to improve customers' profitability by reducing inventory and increasing turns.

Siegel's VMI system can analyze retailers' sales by product and by department. "We can calculate how customers are selling our products by store, by fabric and color, by category or by a group of categories," Milstein says. The system can compare sales in one store with sales in another. What is most important, she notes, is that the system enables sales representatives to act as consultants to their customers. "If we see that one store is doing very well with a product and another is not, we can go to those stores and see what the differences might be. The problem could be demographics, or the way they are displaying the product. It could be that the people on the floor are not keeping the bins filled as new products are delivered. The system enables us to analyze each business better," she says.

One unusual feature of Siegel's VMI system is that its operators are the sales representatives themselves. Working on PCs, they help customers with sales and promotion plans, do projections, adjust orders to match sales and upload sales information to the corporate mainframe, where it becomes available to managers in the production department.

Milstein sees the VMI system and the services it provides as key differentiators between Siegel Co. and its competitors. "The more we help analyze our customers' business, and the more we customize sales and increase inventory turns, the more desirable we are as a vendor," she says. *–M. Williamson*

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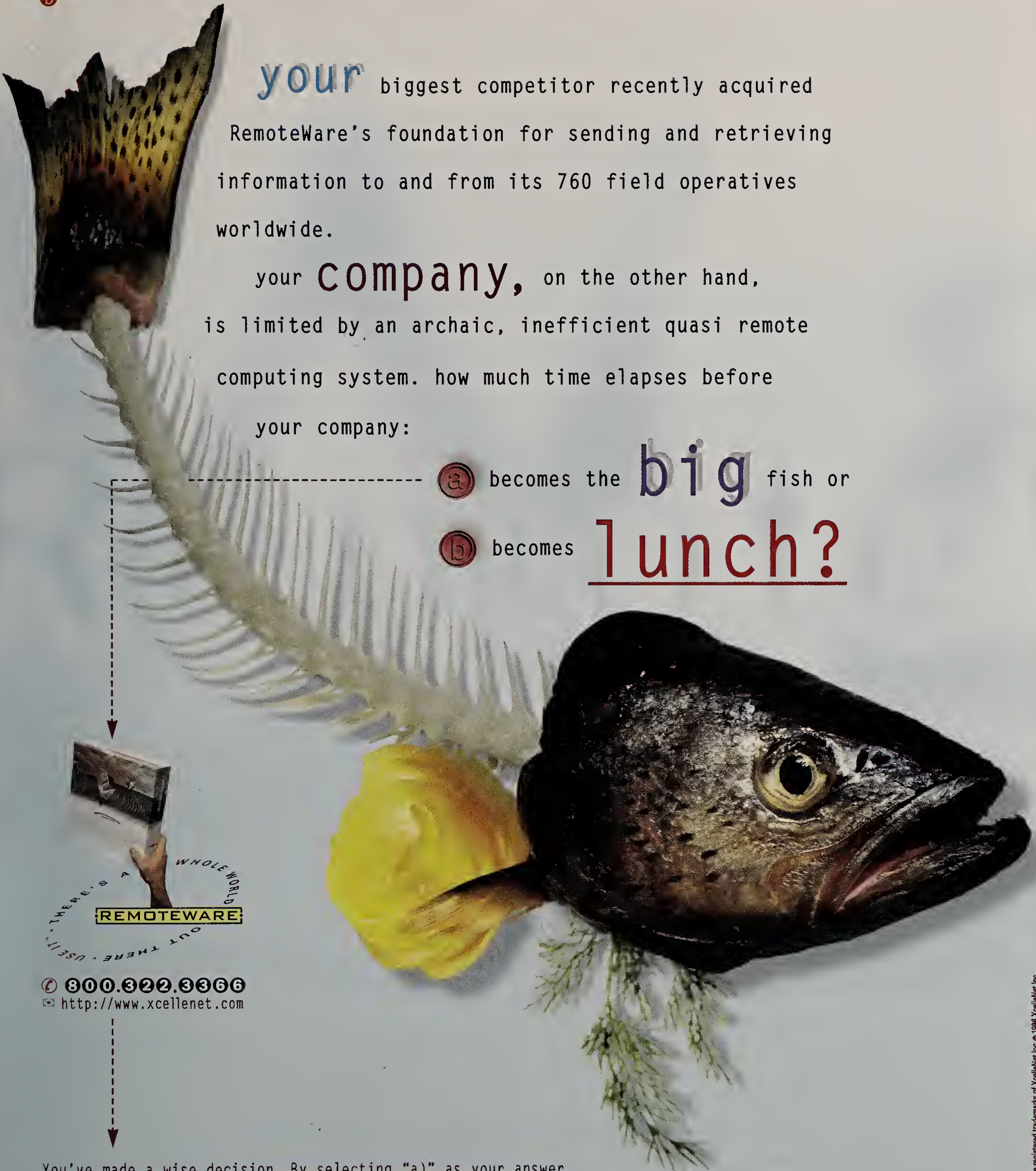

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RALPH DRAYER: *Forty percent of Procter & Gamble's sales volume is handled by the CRP system, which has helped the company save on storage costs and free up inventory capital.*

PHOTO BY TOM ROGOWSKI

chain increasingly refer to their companies and those of their suppliers as a single enterprise.

Nowhere is this more true than in the automobile industry. Having built electronic networks to link suppliers, factories and dealerships, Chrysler is now piloting links to the suppliers of their suppliers, such as the fabric company that supplies the company that makes car seats. "We've done a good job of being electronically linked to our first-tier suppliers. Now we're trying to evolve into simultaneously scheduling the entire extended enterprise," Maples says. The next step is to establish inventory management standards for the entire auto industry. "We all share common suppliers," he says. "If a supplier has to have four different systems to work with four different manufacturers, that's four times the cost and four times the human resources. It's to our industry's competitive advantage to eliminate that waste."

Not everyone is on the VMI bandwagon, however. Spartan Stores, a cooperative grocery wholesaler in Grand Rapids, Mich., has cut its VMI connections from 40 percent of sales volume to zero. "We had too many fingers in the pie," says James Swoboda, director of grocery and general merchandise purchasing. "What would happen if all the airlines were managing their own airplanes into an airport? We think the same thing applies here."

Spartan's suppliers still see the wholesaler's sales data, but Spartan decides when and how much to order. "We found we were spending more time with each of our VMI vendors than we had been before the VMI relationship. They still see the same things we do, so they still have the benefits of planning their inventory or production needs based on the same data we use to create orders, but they aren't pushing the buttons anymore," Swoboda says.

But Swoboda is planning to establish VMI relationships with the stores Spartan supplies. "We want to get to continuous replenishment of product at the store level," he says. A point-of-sale reorder system is in beta test, with rollout planned for the middle of this year. Spartan turns over its grocery, frozen food and dairy inventory about 20 times each year, a five-turn improvement over two years ago in those commodities. The smaller the inventory, the faster the turn. "We'd like to turn inventory weekly, but we've got a long way to go," says Swoboda.

Generally, the push for VMI comes from marketing and sales departments, but the IT department makes it work. Integrating bar coding, point-of-sale data, forecasting programs, EDI, decision support, store management software, logistics and shipping optimizers is not child's play. But the software is the easy part. CIOs are called upon to handle complex issues of process design, change management and training. "The CIO can make this whole process work," says American Software's White. "The CIO who can recognize that the supply chain management movement is gaining in importance can actually drive and enable its benefits."

When all is said and done, cost reduction is the chief motivation for using VMI. For every dollar spent on materials, a manufacturer spends between 70 cents and $1.25 on handling and logistics to get the product to the end point consumer. Richard Kravchuk observes, "Everyone is after that second dollar."

Contributing Editor Mickey Williamson can be reached at wmson@equinox.shaysnet.com

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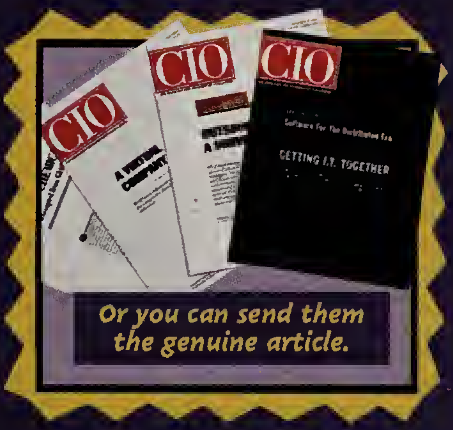

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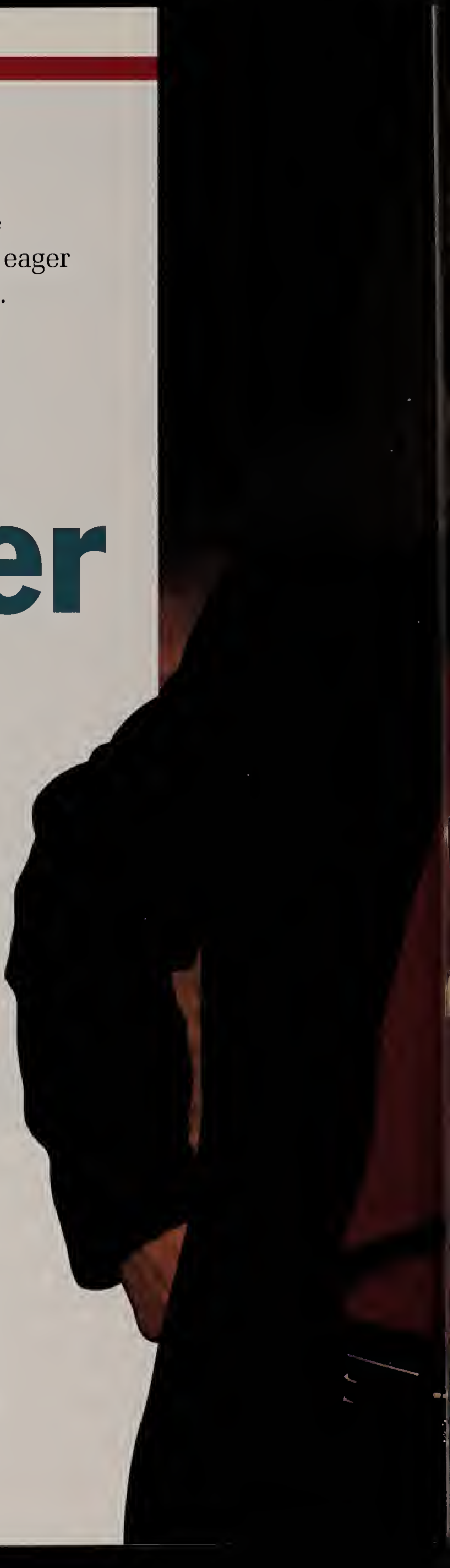
Whom do you follow to become a leader? The paradoxical question makes sense for the CIO eager to swing open the doors to the executive suite.

Enter The Power Elite

BY CHRISTOPHER KOCH



CIOs ARE PLAYING MORE INFLUENTIAL ROLES within their organizations. So it should come as no surprise that their success increasingly depends on possessing that mystical yet indispensable skill known as leadership.

"CIOs have two leadership demands," says Jay Conger, chairman of the Leadership Institute at the University of Southern California. "The first is to build a vision for their own IS group. The second, more difficult demand is to lead their peers from other functions in the company." The difficulties arise because not all fellow executives "necessarily buy into the CIO's perspective of how technology should serve the company's vision."

To meet the latter demand, persuasiveness is a necessary executive skill. "In a weird way, these CIOs are like politicians with a platform trying to get the rest of the party to support that platform," says Conger. "They have to be very good at selling their ideas." Many CIOs are relatively new to this kind of cross-functional leadership role. "People like the CFO and CIO are finding themselves less prepared to lead because historically they haven't needed leadership skills," he says.

No agreed-upon definition exists for leadership, though most experts at least concur that business leaders focus on the future. Most assent to the idea that leaders have a strong sense for where an organization should go, and few quibble with the notion that leaders effectively generate "motivating energy" so that people in the organization want to get there. The debate begins, however, when experts are asked if leaders can be made, and the discussion becomes downright heated when they are asked precisely how that might be done. Still, no matter where in the debate an expert settles, all agree that because IT

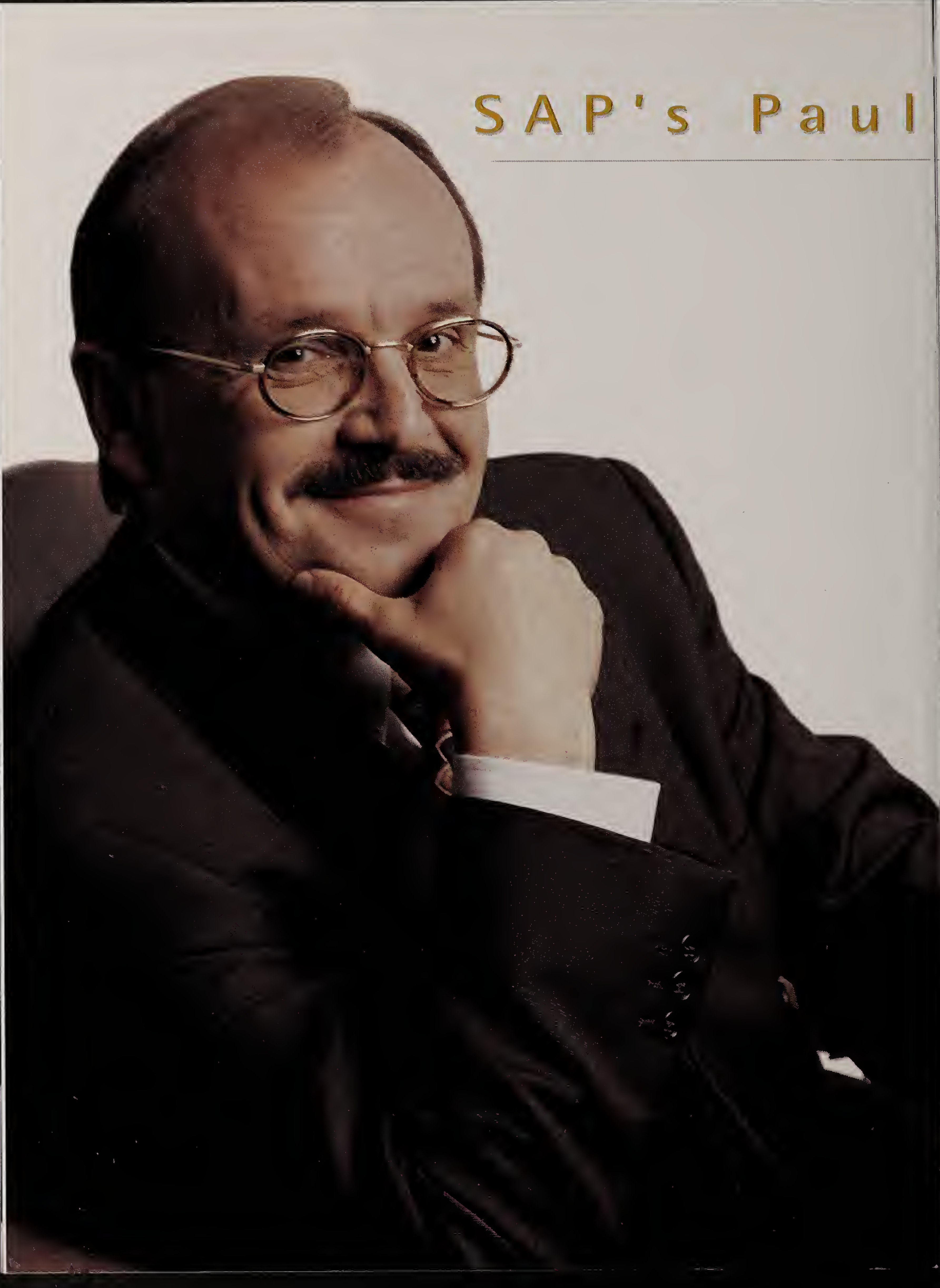
PHOTO BY KATHERINE LAMBERT

is increasingly central to companies' missions, the pressure upon the CIO to move through the ranks of company leaders are increasing.

Satisfying the demand for complex, subtle leadership skills is how Dan McTiernan earns his daily bread. As human resources manager for AT&T's Bridgewater, N.J., office, McTiernan works 12-hour days coordinating leadership assessment of AT&T managers and choosing external leadership programs in which the company's rising stars can enroll. "You need to isolate objectively what leadership attributes are important to the success of your company and get them agreed to within the organization so that the people who are best at the cocktail parties aren't always getting the leadership jobs," says McTiernan. Some of the objective attributes identified at AT&T include the ability to think strategically, to turn strategy into concrete job results, to work well among the myriad organizations within AT&T, and to manage people and conflict. Potential leaders are selected through a series of roundtable evaluations by AT&T managers who are usually two or more levels of supervision above the candidate. The team considers the person's goals and past performance and recommends paths for development.

"We want to identify the difference between the functionally focused smokestack person and the person who wants to run the overall business," says McTiernan. Both types can be stars, but they have different developmental needs. The functional types receive education specific to their disciplines (finance, technology, etc.) until they show the potential—and the desire—for broader horizons. The overall visionaries, on the other hand, as soon as they are identified, are slated for leadership training. They take job transfers within the company that expose them to a wide range of disciplines, and they undergo leadership training. AT&T has many in-house programs that address leadership skill development, but the perspective is limited to

SAP's Paul



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AT&T's own business and internal structures. To obtain broader perspectives, future leaders are sent to outside programs.

Schools Outside

That was the case for Michael W. Johnson, AT&T's vice president and CFO for divisional CIOs. He recently attended INSEAD (the European Institute of Business Administration), a French program where he joined hand-picked prodigies from around the world for five weeks of classroom training, group and individual exercises and heavy-duty schmoozing. But even before he boarded the plane, Johnson had to leap a number of hurdles. A 22-year veteran of the company, he had passed through finance and technology jobs on his way around the career track, eagerly attending the available internal leadership programs. When he began politely pounding on the door to get into INSEAD, his boss, Ron Ponder, executive vice president of operations and services management, agreed to submit his name to AT&T's executive committee—a company requirement for education at this level. After considering Johnson's background, past performance and desire to learn, the committee gave the go-ahead and nominated him for INSEAD.

Johnson didn't go to France expecting to gain new academic insight. "Education at my level is more personal than academic; I've done a lot of business cases in classes," he says. Instead, he was looking for new understanding of how other cultures, not just other industries, view business. "For example, we had a long debate about bribery in business—whether you should simply pay or try to fight it," he says. "There were two guys, one from Nigeria and the other from Malaysia, who said simply, 'Pay it.' They didn't see an ethical issue there at all. That opened my eyes."

Expanding one's leadership horizons doesn't always require crossing an ocean, however. At Wilmington, Del.-based Hercules Inc., a chemical manufacturer, 27-year IS veteran Jane L. Breckenridge, director of information management, was chosen to attend the LeaderLab at the Center for Creative Leadership in Greensboro, N.C. Hercules doesn't have the kind of formalized leadership hurdles set on the career track at AT&T; Breckenridge's route to school was based on a more informal combination of personal ambition and her bosses' observations.

PAT WALLINGTON *has made Xerox's Global Process and Information Management Organization a leadership test lab.*

PHOTO BY EDWARD SANTALONE

In the past, Breckenridge had taken on some ambitious project management roles within IS. Top management wanted to see if outside training would help sharpen her leadership skills. "The president, the director of HR and the controller saw me putting a lot of energy into trying to make changes and implement state-of-the-art systems," she says. "They wanted to help me do it with more efficiency."

The LeaderLab asked Breckenridge's colleagues at Hercules to fill out detailed 360-degree evaluations before she showed up to class. Breckenridge then worked on comparing that feedback with her own self-image. The two didn't jibe exactly. "I realized that I was focused on what I wanted to do, but I didn't project that enough," she says. "The program gave me the courage to share that focus more with other people and get more input on what they think."

The program draws a clear division between business goals—creating a strategic plan for your company or department, for example—and job-related personal goals—having what you do reflect your own values and goals. To avoid having students abandon their new insights when they return to work, the program is organized so that students spend a few weeks at the lab, a few months at work and then a few weeks back at the lab. That enforces their ac-

SIM Leader Forums

SIM ISN'T LOOKING for a few good leaders; it's looking to make them.

The Society for Information Management sponsors the unique Leadership Development Institute (LDI), a live laboratory environment for IT professionals who are ready to change.

The LDI Regional Learning forums, conducted annually at four sites in the United States, demand a 10-month commitment. Participants attend as many as seven two-day meetings, lead discussions, participate in presentations, conduct LDI peer group exercises and read nearly 40 books, ranging from traditional business/management tomes to such offerings as *The Art of War* and *The Celestine Prophecy*.

LDI was launched in 1992 by Dick Dooley, one of SIM's founders. Through 1995, says Laura Gramling, SIM programs coordinator, 160 participants have completed LDI training. Eighty are involved this year. The four program sites can collectively accommodate as many as 100 participants. To be admitted into LDI, one is chosen by a sponsor in his or her organization, Gramling says. "But we find a lot of people wanting to go to LDI now; they're not just being picked and told they're going to go."

Founded in 1968, SIM is an international organization for information executives. It has more than 30 chapters worldwide.

For more information on SIM or LDI, call (312) 644-6610 or visit SIM's Web site at *http://www.simnet.org*

–Tom Field

countability for actually putting to use what has been learned.

Students at the LeaderLab don't evaluate their progress alone. In conjunction with a "process adviser"—a coach from the LeaderLab who monitors progress—Breckenridge chose a number of peer advisers at her office to help her move toward her goals. "I asked a woman I work with to watch me in meetings when I was going to take some kind of risk, like make a difficult presentation," says Breckenridge. "She'd give me feedback on what she thought, which was a big help."

The feedback helped Breckenridge, but it also informed her colleagues of what she was accomplishing as well as what they could do to assist her. "You can be successful at a leadership program away from the office, but if you get back and no one's changed their behavior but you, it's hard to follow through on what you want to do," Breckenridge says. "Having the peer advisers helped me transfer the things I learned into my work because it made people aware of where I'd been."

When it was over, Breckenridge felt she had gained clearer focus on her work goals, both personal and professional. She realized that she enjoys helping others learn, so she now runs training for the company's SAP project. But did the LeaderLab make her a better leader? "I'm more clear in my mind now about how I set priorities," Breckenridge says carefully, modest about proclaiming her leadership progress. "I'm better at telling people what I think is important and what I think has less relative importance in the work we're doing."

Schools Inside

Some IS organizations are trying to replicate in-house the kinds of experiences Breckenridge had through expensive outside providers. Patricia Wallington, corporate vice president of global process and information management and CIO of Xerox Corp. in Stamford, Conn., says the in-house route forges stronger ties to the ordinary business of the day, making leadership training feel more like an ongoing process than an occasional intervention. Wallington made Xerox's Global Process and Information Management Organization a leader-

PHOTO BY EDWARD SANTALONE

MIKE JOHNSON: *"I had a boss say to me once that 80 percent of his job was simply communicating to the folks who worked for him and the customers he supported."*

ship test lab for the entire company.

Rose Fass, principal and partner of the Center for Organizational Transformation at Xerox, is charged with developing the different leadership offerings for Wallington's group. She has created a leadership "smorgasbord," serving up training options ranging from the traditional to the outright touchy-feely. For example, Xerox employees may gather to hear best-practice project management presentations one week and the following week take part in martial arts classes that create a "physical analog" to work-related issues, such as conflict. But a consistent vision underlies the diverse approaches. Although different consultants may be brought in, the offerings are always facilitated by someone from Fass's group. Keeping the experience rooted in Xerox's realities gives the attendees continuity between their jobs and their training as well as a chance to offer direct feedback on the program to the staff.

Wallington has a significant personal stake in the program; it grew out of an executive coaching relationship with Fass that began in 1993

JAY CONGER: *Not all executives buy into the CIO's perspective of how technology should serve the company's future vision.*

PHOTO BY MICHELE A. H. SMITH

Lessons to be Learnin'

There's more than one school of thought on how to go to school

There are all sorts of ways to become a leader, and Jay Conger, chairman of the Leadership Institute at the University of Southern California has tried—through research and personal participation in various leadership programs—to make sense of what works and what does not. He divides the vast array into four approaches:

① **PERSONAL GROWTH—** equates bungee-jumping off a cliff with installing the new SAP system on time. Intense physical and emotional "risk taking" experiences are designed to imbue potential leaders with the guts to try new things on the job. Many participants get their most profound insights on a personal rather than professional level, fomenting lots of teary, 3 a.m. phone calls home to unsuspecting loved ones after a trainee has aced the bungee jump. **Virtues:** Vivid, challenging physical and emotional experiences really *do* have an impact on human learning and create a capacity to view things in a new way. **Liabilities:** No guidelines exist for applying the lessons learned back at the office.

② **SKILL BUILDING** —focuses on the attributes of leadership that can be converted into teachable skills, such as inspirational speaking or team building. **Virtues:** The skills are clearly defined and exercises are highly focused. **Liabilities:** Mastering any skill takes a long time, and the resolve to practice fades quickly. Furthermore, as with Personal Growth, the exercises might not translate well to the daily routine.

③ **FEEDBACK**—presumes we need a mirror—with a consultant standing behind it—in which to see our leadership style as others do. **Virtues:** Often this methodology creates insights for people whose self-image contradicts how others see them; for example, young managers are frequently surprised to learn that their peers view their skills favorably. **Liabilities:** Such an approach can have an impact only if people are highly motivated to learn and are willing to examine their own behaviors.

④ **CONCEPTUAL AWARENESS—** outlines and presents for study the five or 10 (everyone has their own list) most important leadership skills, with case studies and demonstrations showing what it's all about. **Virtues:** Case studies and leadership profiles usually are relevant to the student's own company or job. **Liabilities:** If that's all it took, we'd be a world of Roosevelts and Gandhis (or, heaven forbid, Hitlers and Stalins).

Conger says all four methodologies can be effective but that none alone is sufficient to do the job. As a result, he recommends looking for leadership programs that combine aspects of each. Such composite programs are difficult to find because most consultants and educators tend to have very specific points of view about what works—and tend to favor what they're best at teaching.

Given the blizzard of offerings out there, Conger believes companies trying to grow leaders shouldn't simply be looking for someone to cultivate prospects for them. In-house programs, even skeletal ones, have the virtue of making at least one person accountable for finding what works for the company.

–C. Koch

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when 75 percent of Xerox's IS staffers were outsourced. Wallington needed to present a coherent message to those staffers who were moving to the new company as well as those who would be left behind. She asked Fass to help her through the management difficulties. "The coach becomes like a mirror," says Wallington. "Rose gave me feedback on the things that worked and the things that didn't, and why."

"We talked about how we could present the outsourcing as an opportunity rather than a conflict," says Fass. "Post-outsourcing, the coaching focused on how you go about merging two cultures [the outsourcing group and Xerox's internal IS group]." Fass continues to coach Wallington, and the concept is catching on in her department. "When the staff sees that the boss is willing to be coached, then they're more willing to be coached themselves," says Fass.

ROSE FASS: *"When the staff sees the boss is willing to be coached, then they're more willing to be coached themselves."*

PHOTO BY EDWARD SANTALONE

Coaching

The work that Wallington and Fass are doing together isn't unusual these days. Leadership coaching of senior executives is one of the faster-growing lines of business for consultants. Often a consultant is summoned because of a crisis, though the call is usually precipitated by "a crisis with a small c," according to Phil Dixon, a former MIS director and human resources manager at Cupertino, Calif.-based Apple Computer Inc. Dixon now coaches business executives and CIOs for Co-Development International, a management consulting company. Sometimes the crisis is caused by a specific event—for instance, downsizing, a merger or a troubled internal initiative such as a derailed reengineering effort. But sometimes the crisis that brings a call to Dixon is of a more personal nature.

Executives usually call on him to work with a subordinate manager who is valuable but lacks a key skill, such as communication, creativity or problem solving; in short, a piece is missing from the typical profile of an effective manager. Dixon spends a few days talking with his clients and then begins observing them on the job to obtain a sense of what must change for them to succeed. "Probably my best quality as a coach is that I ask a lot of challenging questions and let the person come up with the answer."

Dixon acknowledges that while these corporate-sponsored therapy sessions may help executives and CIOs weather a crisis or look better in meetings, they will not, in and of themselves, shape someone into a leader. Dixon senses that leadership may, in the end, be mostly a matter of experience and a capacity to learn from others. For one client, he took an informal survey of 200 to 300 employees to see who in the company they identified as true leaders. Out of the company's 10,000 personnel, only 12 people were consistently named by their co-workers. "That was a little frightening," he says. What's more, nearly all of those named were surprised that others considered them leaders.

Dixon took the 12 aside and asked them to identify the one thing that contributed most to their own leadership qualities. "About 90 percent of them said they had had a role model—a parent or boss—whose style they remembered," he says, adding that the role model wasn't always a positive one. "Some recalled having a boss who was so awful that they said to themselves, 'I will never treat someone else like I've been treated.'" Only one said a leadership course had influenced his life.

For all his years of AT&T-sponsored training, Johnson still has occasional self-doubt. Though he has consistently proven himself an effective leader in his various assignments, he worries about finding the proper mix of leadership skills. "I had a boss say to me once that 80 percent of his job was simply communicating to the folks who worked for him and the customers he supported," Johnson says. "My first thought when he said that was, 'Hey, I have work to do. How am I going to find time to do that?' But, as I've come to appreciate, part of my job is helping the organization understand where we're going and what we're trying to do."

Johnson pauses and then ponders the risks that beset the handful of businesspeople who have made pure leadership their job—the Iacoccas and the Welches of the world. "It would be interesting if I wrote my objectives for 1996 and said I'm going to spend all my time talking to employees and customers. What would the reaction be in the company?"

Find it Online

For a suggested reading list on leadership, see the *CIO* Web Site: *http://www.cio.com/CIO/050196_lead_list.html*

Senior Writer Christopher Koch can be reached at ckoch@cio.com

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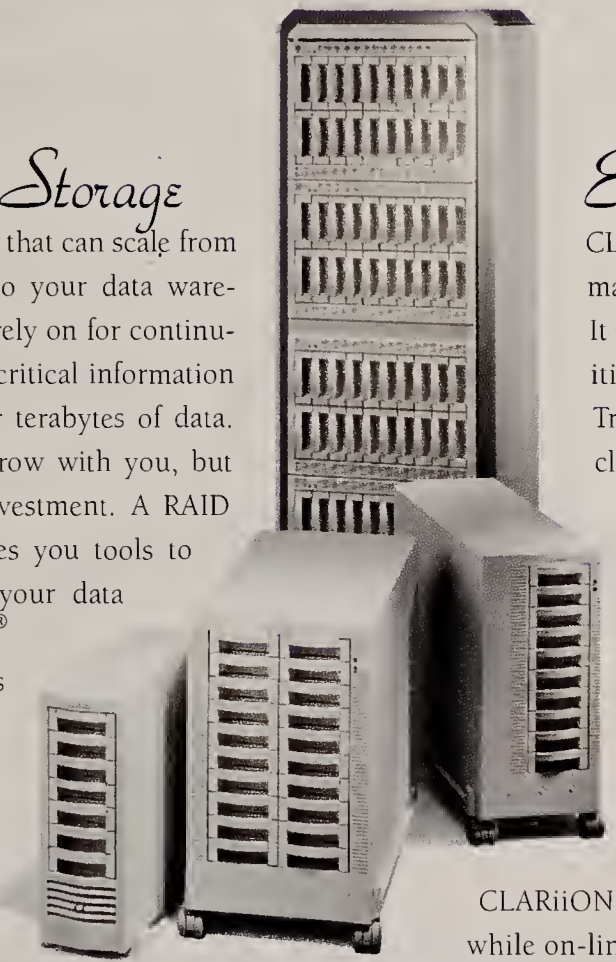

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PREPARING • FOR CHANGE •

Perfect Pitch

The art of advertising has gotten more complicated in an era of burgeoning electronic media outlets and fragmenting markets. At last, Madison Avenue is discovering the benefits of IT.

BY PETER FABRIS

It's May 1, 2000. Verne Datason, CIO at Weighcool Advertising Group in New York, flops down at his desk for a well-deserved coffee break. He puts his feet up and raises a mocha latte to his lips as he surveys his technology domain. In the creative area, art directors update a World Wide Web site for Futuristic Software's Virtual Luau Version 1.0, a hybrid adventure game/movie. The Web project is part of a full-scale multimedia blitz combining Internet advertising and interactive TV spots with image-building cable TV commercials and print ads touting the Virtual Luau brand. Within weeks, cable TV viewers will be able to download demo versions of the product just by pushing a button on their hybrid PC-TV's remote control.

THUMBNAIL

Industry: U.S. advertising agencies

Primary Products: Advertising, marketing communications

Industry Revenues: For 1996, estimates reported in *Advertising Age* range from $100 billion to $174 billion

Number of Players: 13,879 (according to the 1992 Census of Services Industries)

FORCES OF CHANGE

Fragmentation of Mass Media and Markets: The proliferation of cable TV channels, niche magazines, narrow radio formats and interactive media gives consumers a wide range of entertainment options. Consequently, it's nearly impossible for advertisers to reach a mass audience through just a few media outlets. In addition, clients increasingly design products for niche markets rather than for the entire population.

Impact: It's much more difficult than it used to be to make a client's message stand out from the information clutter. Agencies must devise different ads for specific demographic segments and identify the right combination of media outlets to reach them.

Clients Cut Advertising Budgets: In eras of belt tightening, advertising is always one of the first expenses to be trimmed. Now that network TV no longer guarantees broad reach, advertising investments are harder than ever to justify.

Impact: The advertising industry's traditional revenue source is stagnant at best. Agencies add new services to the mix and evolve into full-service marketing providers.

Interactive Media: CD-ROMs, video games and especially the World Wide Web offer potential as advertising vehicles.

Impact: Agencies must acquire the technical expertise and build a technical infrastructure to exploit these new opportunities.

ILLUSTRATIONS BY JAMES YANG

I.S. ACTIONS

Developing the infrastructure for digital storage, retrieval and sharing of creative materials to be used in multiple media

Enabling creative teams and clients to collaborate on campaigns via the World Wide Web, videoconferencing, Lotus Notes or other groupware options

Providing technical support for World Wide Web site development and maintenance

Developing software to track progress and expenses on individual accounts and determine costs on a project-by-project basis

Building data warehouses and analytical software to study demographic information; large agencies that venture into sophisticated market research need these tools, whether they gain them through acquiring market research companies or contracting out for market research services

At Weighcool's Silicon Valley office, another group of art directors prepares brochures and direct mail pieces for the product, downloading logos, photographs and artwork from digital library servers in New York. Back in 1988 when Datason joined Weighcool, art directors had to ship film coast to coast to share their work and lacked real-time collaboration capability.

Datason smiles with satisfaction as he gazes toward "Suits City," as the creative types refer to the section of the office housing the account executives. Datason's software team built Project Tracker, which anyone in the office can access to gauge progress of individual projects. The application was a huge hit with the "suits" who can now calculate the cost of each project down to the last FedEx fee. Overall, not a bad record for just over two years as Weighcool's CIO.

Datason's morning musings would have been unthinkable at any advertising agency a few years ago. Historically, agencies have been indifferent if not averse to technology. A number of market forces—including the fragmentation of mass media and markets, stagnant advertising budgets and the emergence of interactive media—are pressuring the industry into an about-face on IT. Proof positive: The title "CIO," virtually unheard of on Madison Avenue in years past, is appearing on agency organizational charts.

"This is the first time the agency world and CIOs' world have collided," says David Carlick, senior vice president and general manager of Poppe.com, the interactive arm of New York-based Poppe Tyson Advertising & Public Relations. Most industry executives agree. In fact, Bill Cleary, founder and chief marketing officer of CKS Group, a relatively small but technologically savvy agency in Silicon Valley, says his company is actively recruiting its first CIO. Even though CKS has designed proprietary operational and creative software and become an industry leader in exploiting the Web without an IS executive, Cleary says he feels the company now needs a CIO to develop a long-term technology strategy. "We're technical dilettantes," he says. "It's time to bring in a scientist."

CKS's CIO, or any new ad agency CIO for that matter, will have plenty of technical issues on his or her agenda. Challenges will include ensuring high-bandwidth Internet access, building high-speed WANs to connect dispersed offices, developing or buying Web and operational software, constructing digital libraries and providing a videoconferencing infrastructure. That's a lot of work on anybody's docket. But on the upside, the industry's history of technological backwardness means agencies are not saddled with maintaining massive mainframe legacy systems.

Many agencies, particularly large ones, have upped their technology investments in the past few years. Poppe Tyson, for instance, spent $1.8 million—an average of $8,000 per employee—on computer technology in 1995, an unusually high figure for the industry. Mike Johnson joined Chicago-based TN Technologies Inc., the technology division of True North Communications Inc., as senior vice president and its first CIO in August 1994. During his brief tenure, "there's been a huge jump in technical capability and investment," he says. That's not to imply that every ad agency has suddenly leapt from the computer Dark Ages to the 21st century, but the trend is certainly toward increased IT sophistication.

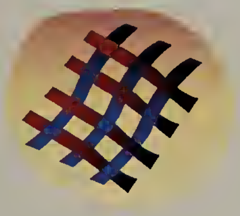
It's ironic that the industry's investment in technology follows several years of declining advertising spending in traditional media vehicles. Agencies historically have made most of their money by tacking a 15 percent commission onto their clients' mass media buys. As those buys have diminished, so too have agency revenues (although major agency revenues did rebound in 1995, halting a downward cycle that began in the late 1980s). In some industries, particularly consumer packaged goods, sales growth is meager at best, according to John Philip Jones, a former ad executive, author of several books on the industry and professor of advertising at Syracuse University in New York. "The overall consumption levels of most packaged goods products have been stagnant," says Jones. Consequently, many clients have kept their advertising budgets level or slashed them. What's more,

COMMON THREADS

IS executives in industries undergoing dramatic change should:

Assess the impact of new technologies on customers. In advertising, for instance, the Web may become the main business conduit for certain clients such as mail order catalog houses, financial services providers and insurance companies. Consequently, their advertising needs may become more heavily weighted toward the Web.

Partner with companies in related industries. Some agencies have joined forces with multimedia companies renowned for special-effects work in movie and television production. These multimedia companies will provide creative content that will make advertising stand out from the pack.



Track the needs of customers. Ad agencies must be cognizant of market forces affecting clients' marketing strategies. Consumer packaged goods companies, for instance, are developing products targeted at select subsets of the population. Thus, advertising messages must be fine-tuned for different markets, and media buys must be precisely targeted. IT enables detailed market and media analysis.

some companies are finding direct-marketing efforts—such as direct mailings, coupons and in-store promotions—increasingly appealing as an alternative to mass media advertising because they tend to pay off in measurable sales upticks. Although such quick fixes can bolster the quarterly bottom line, they often have little or no long-term brand-building impact, Jones asserts.

But agencies are finding it harder than ever to persuade clients to invest in image-building advertising now that advertisers can no longer reach 90 percent of their target markets on broadcast network television. It used to be common for families to gather each night 'round the electronic hearth—first radio, then TV—where they'd select from only a handful of programming choices. Today, not only are there more than 100 cable channels in some communities but many homes are equipped with VCRs, multimedia computers and video games. The proliferation of cable TV has produced a corresponding decline in network TV viewership; Nielsen network ratings dropped from 91 percent of all prime time television viewers in 1979 to 57 percent in 1995. Thus, except on rare occasions such as Super Bowl Sunday, advertisers can't reach a solid majority of the American adult population in one fell swoop. Even if they could, viewers are tuning out commercials. According to a recent survey by San Francisco-based market research company Odyssey LP, 39 percent of more than 4,000 households zap commercials with the mute button; 68 percent channel surf most of the time.

Getting messages to consumers has been further complicated by a concurrent fragmentation of markets and a move toward micromarketing in the consumer goods industry—two trends that feed off each other. Companies now regularly try to build market share by devising new varieties of products targeting specific demographic groups rather than the entire population. They've also found that consumers often respond better to pitches aimed closely at groups with which they identify—urban Generation X-ers, yuppies with young children—than they do to general ads geared toward the amorphous American market.

Advertisers therefore must hone their messages for individual products and choose from a plethora of media channels for the market subsets they want to reach. Procter & Gamble, for example, markets 32 varieties of Crest toothpaste, according to Jones. Advertising for

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ADVERTISING INDUSTRY AT A GLANCE

PAST

Agencies made the bulk of their revenues by tacking 15 percent commissions onto advertising media buys. They placed ads in relatively few outlets—such as network television and mass-market magazines—that reached the majority of the population. Demographic analysis was fairly primitive but adequate for a mostly homogeneous market. IT had little impact in the agency world. American agencies generally placed few ads overseas, concentrating their efforts instead on the fast-growing domestic market.

FUTURE

Advertising agencies evolve into full-service direct marketing companies. They are much less dependent on mass media buys for revenue than the old-fashioned Madison Avenue agencies were. Modern agencies produce integrated multimedia campaigns combining traditional media outlets with new interactive media. Enormous data warehouses of marketing information enable highly specialized micromarketing. American agencies strengthen alliances with agencies around the globe to serve foreign markets, many of which grow faster than those at home.

Crest with blue sparkles may reach its target market of young children most efficiently on Saturday morning major network programming and cable channels Nickelodeon and the Cartoon Network; when there was only one Crest, the company could focus advertising dollars solely on the major networks.

Dwindling advertising budgets and the fragmentation of media and markets have left agencies no choice but to do a better job of delivering more-targeted messages to the right audiences at the lowest cost. To reach a particular client's audience, agencies have to use nontraditional media—niche cable TV channels, videocassettes, CD-ROMs, the Web—or any other medium that makes sense. Pinpointing the target markets among an expanding number of demographic segments and figuring out just which media will best reach them has become more difficult—and more important—than ever. Agencies are finding that the shotgun approach doesn't work anymore—and that IT can sharpen their aim.

Fortunately, technology enabling sophisticated market and media analysis—huge data warehouses powered by parallel processors—has advanced by leaps and bounds in recent years. "You can acquire information today that was absolutely unthinkable three years ago," says Fergus O'Daly, chairman and CEO of Poppe Tyson. "You can get lists of, say, everyone who has taken more than two trips to Europe this year." Now that there are media outlets for just about any imaginable subset of the population, smart agencies are helping clients zero in on their target markets and reach the right consumers through carefully planned buys of both traditional and new media.

Some companies have found unconventional ways to target consumers more precisely and have added new services that bring in additional revenue. One that has gone far beyond the scope of traditional Madison Avenue pitches is Hill, Holliday, a Boston agency that augments television, radio and print campaigns for Providence-based Cellular One of Rhode Island by staffing an 800-number response center for the client. "The [industry] trend is definitely toward offering a full range of marketing services," says Hill, Holliday Executive Vice President Tobey Choate.

The customer response service provides a wonderful opportunity for Hill, Holliday to track the effectiveness of its ads and media placements. When potential customers call Cellular One of Rhode Island's 800 number to purchase cellular service, Hill, Holliday operators run credit checks on the prospects, sign them up and arrange to have the cellular phone programmed and sent out the same day. During the conversation, operators ask prospects how they heard about Cellular One, and Hill, Holliday refocuses its media buys based on those responses. For example, if an analysis of the customer response database shows that women ages 25 to 40 are responding more favorably to commercials on adult contemporary radio stations than to soap opera ads, the agency might reduce TV spending and increase radio buys to reach that audience. In addition, if the agency discovers that its target market isn't responding to an ad, it can revamp the creative strategy.

CKS Group designed proprietary operational and creative software and became an industry leader in exploiting the Web without an IS executive. But the agency wants to develop a long-term technology strategy, so it's looking to hire its first CIO.

Hill, Holliday's recent acquisition of The MSP Group, a direct marketing agency, not only gave the company a new service but improved its research capability through MSP's massive relational marketing database system. Using statistical modeling to mine the data acquired from purchased lists and client records, Hill, Holliday builds individual, client-tailored databases. Leveraging this information, the agency conducts detailed marketing studies for clients to identify the best prospects by demographics, geography, buying habits, personal interests, etc. The proprietary database system, called Expertise, was written in C and uses an Oracle Corp. relational database management system. Hill, Holliday personnel in a Boston skyscraper access the system in a suburban Framingham office park through a dedicated T1 connection. Eventually Hill, Holliday hopes to give clients direct access to their own databases via the Web so that they will be able to do their own research as well.

While offering new services that help clients refine their target audiences can help agencies stand out from their competitors, the agencies still must deal with the vexing problem of how to reach those audiences. As CKS's Cleary puts it: "If TV and traditional media can no longer achieve mass reach and frequency, how do we get our message out?" One answer is Interactive media—CD-ROMs, video games, interactive TV, the Internet and the Web. The Web, in particular, presents an opportunity to create a brand-new advertising model (see related story, Page 60). "Traditional advertising gives you awareness—that's it," Cleary explains. TV and radio are passive media—one sits and watches or listens without interacting with the appliances. The Web, by contrast, is an interactive medium tailor-made for consumers who want to research major buys from cars to computers to financial services. "For a considered purchase, particularly in business-to-business industries, the Web is wonderful," Cleary says.

Although most agency executives see value in the Web, many aren't yet sure what to make of the new medium. "I don't know if it is the apocalypse or the next wave in advertising," says Mark Wilson, vice president and executive creative director with Ingalls, Quinn and Johnson's Group 121, a direct and interactive marketing agency in Boston. The Web may be a powerful medium that will reshape advertising someday, but that day won't arrive until a majority of households have broadband connectivity, most observers say. Even so, major advertising agencies shouldn't wait to make their first forays on the Web—or small but ambitious Web service providers such as New York-based Agency.Com Ltd. will fill the void.

Founded by two entrepreneurs with backgrounds in fiction and screenplay writing, Agency.Com has landed

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Webvertising

Will the Web transform advertising strategies?

The World Wide Web is unlike any medium the advertising industry has seen before. Web surfers actively seek out Web sites—a far cry from being bombarded each week with hundreds of unwanted messages through direct mail, radio, TV and print media. Some say that once the medium takes hold, advertising messages will have to tone down the hype and provide useful information for consumers.

As executives at Intel Corp. learned when their Pentium chip flaw was exposed on the Internet, news travels quickly in cyberspace. "On the Web, you can conceivably have 5,000 loyal Web visitors that spread your message to 100,000 others," says Bill Cleary, founder and chief marketing officer of CKS Group in Cupertino, Calif. Consequently, he warns, "you'd better not lie."

With that caveat, companies that offer big-ticket items—such as automobiles, investments and insurance—that require research prior to purchase are obvious candidates for leveraging the Web's timely information dissemination capability. But what about manufacturers of consumer packaged goods? With proper creative inspiration, they too can find value on the Web.

GCI Group in New York developed a popular site for Borden Corp.'s Cracker Jack snack product during Major League Baseball's player strike in 1994. In the early days of the strike, "we noticed the media coverage was mostly about the players and owners," says Chris Clark, vice president for GCI. "There wasn't a lot of attention on the fans." GCI provided an online forum called "Bring Back Baseball" for fans to express their displeasure with the premature end to the season and subsequent cancellation of the World Series. GCI assembled a list of "top 10 fan responses" culled from the site and distributed it to sportswriters. The tie-in between Cracker Jacks and baseball was a natural because the product is included in the lyrics to "Take Me Out to the Ball Game," the sport's anthem. "We got a lot of great media coverage," says Clark. "That's how we measured success. That was more important than the number of hits we got on the site."

The Web is a terrific medium to respond to breaking events like the baseball strike. A site can be constructed in a matter of days—even hours—to exploit a unique occurrence. The day after the strike ended, GCI changed the site's theme to "Celebrate Baseball" as fans looked ahead toward a new season. A few weeks later, with nothing new to add, the agency took the site down. "The strategy wasn't there for a permanent presence," Clark says.

Such quick-response, short-term marketing initiatives are well-suited to the Internet. "Web [advertising] is more like the model of journalism than the model of traditional broadcast media [advertising]," says Cleary. "The ad agency of the future is going to function more like CNN, deploying information in real-time." *–P. Fabris*

some big-name clients such as American Express, GTE, MetLife and HBO Home Video since its launch in early 1995. "Some of our clients hire big ad agencies that may or may not be happy we're working on this stuff," says co-founder Kyle Shannon. In a sense, Web providers such as Agency.Com are not "stealing" business away from established ad agencies, because those agencies haven't had Web business to steal. Nevertheless, no old-line Madison Avenue agency would be pleased to see clients rushing to others for Web services that could become an important source of revenue growth in the future.

One issue holding back the Web's development as an advertising medium is the difficulty in measuring audience size and gauging ROI. "There's nothing on par with Nielsen ratings for the Web," says Steve Jones, communications professor at The University of Tulsa in Oklahoma. "You can get close with [Web site] registration, but the quality of the information is not as high. If you have six different e-mail addresses, do they count that as six different people?"

Uncertainty over who uses the Web and the effectiveness of Web advertising makes determining its value difficult. However, ROI is fuzzy in other media too, according to Jon Adams, New York-based eastern regional director of TN Technologies. "I would challenge anyone to give me good ROI for television buys," he says. Despite the fact that no one can be sure that an investment in the Web will pay off, Adams observes that few clients really scrutinize the returns from their Web sites yet. Down the road though, many foresee huge paybacks, particularly when consumers log on in huge numbers to buy products and services over the Net.

Executives at DoubleClick Inc. in New York have devised a model they believe will make the Web a viable advertising medium. DoubleClick is a Web advertising network that provides targeted ads in real-time based on demographic profiles of users derived from their Internet addresses. "Say you want to reach people who work in banks of over $1 million in assets in the New York area," says Kevin O'Connor, DoubleClick's CEO. Every time a user with an Internet address from a qualifying bank visits a Web site affiliated with DoubleClick, the client's banner ad will automatically appear on the user's screen. The user can click on the banner and connect with the advertiser's Web site. As the Web equivalent of a syndicated television spot buying service that places commercials in local markets for individual sponsors, DoubleClick frees advertisers from having to contact each Web site individually to place an ad. The company also tracks Web advertising reach. "We know if [Web surfers] meet the criteria and how many times they see the ad," O'Connor says. At this point, however, DoubleClick can't reach many consumers' homes effectively. America Online users, for instance, log onto the Web from one mass link rather than from individual business Internet addresses that can be categorized.

> *"We are really in the software business, not the advertising business."*
>
> –DAVID CARLICK

In addition to providing advertisers with a new vehicle for reaching customers, the Web has accelerated the use of technology in the creative departments of agencies. Most agencies are moving toward digitizing all photography and artwork they create for clients so that it can be reused easily in a number of media—television, the Web, CD-ROM, print magazines and even salespeople's laptops during sales pitches. "Increasingly, we're going to be in the business of maintaining digital assets for clients," Poppe.com's Carlick says.

In the future, large agencies will amass enormous digital libraries of video, still photos and artwork stored on CD-ROM or even digital jukeboxes accessed via PCs. Agencies may acquire elaborate systems with high-powered servers that will support extended clips of full-motion video. Digital storage and electronic document-sharing systems already in place today allow creative teams in several different locations to work on projects simultaneously. Clients with access to agencies' creative works can approve them instantly rather than wait for overnight mail. This capability has a downside for agencies, though. "Years ago, you'd say to a client, 'Give us two weeks to work something up,'" says Poppe Tyson's O'Daly. "Now the expectation is [that we need only] a couple of days at most." Many clients have reduced product cycle times dramatically in recent years, he points out, so it's no wonder they're demanding quicker turnaround on their advertising campaigns.

Despite such drawbacks, the benefits advertising agencies can reap by embracing sophisticated IT are too compelling for any to ignore. Indeed, some agencies say they fully expect technology to transform their business well beyond the long-held definition of the field. "We are really in the software business, not the advertising business," says Carlick.

Agency executives of the future may take this view for granted during coffee breaks. By the time agencies like Weighcool become a reality, the CIO title on advertising agency organizational charts won't seem the least bit unusual.

Staff Writer Peter Fabris can be reached via e-mail at pfabris@cio.com.

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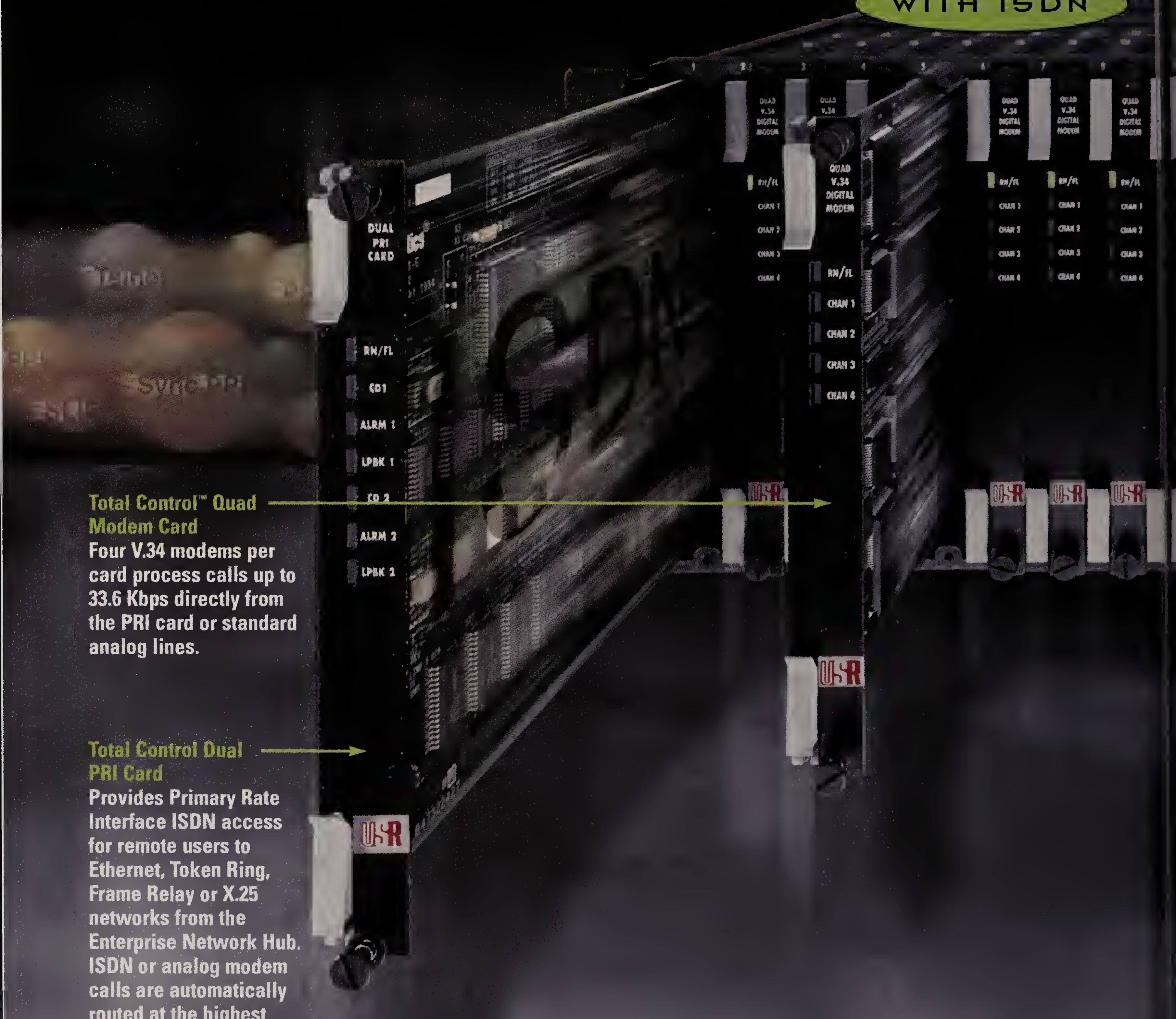

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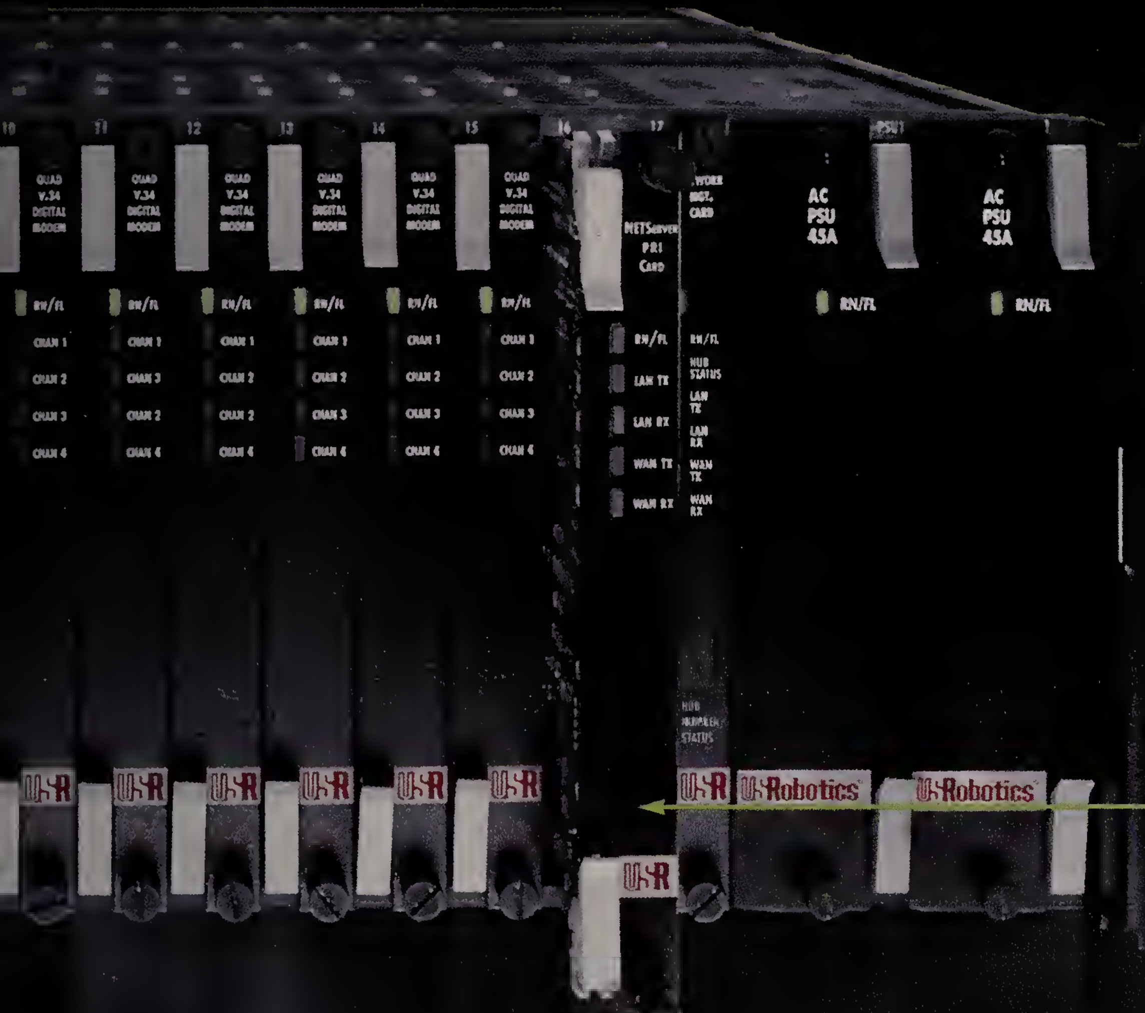

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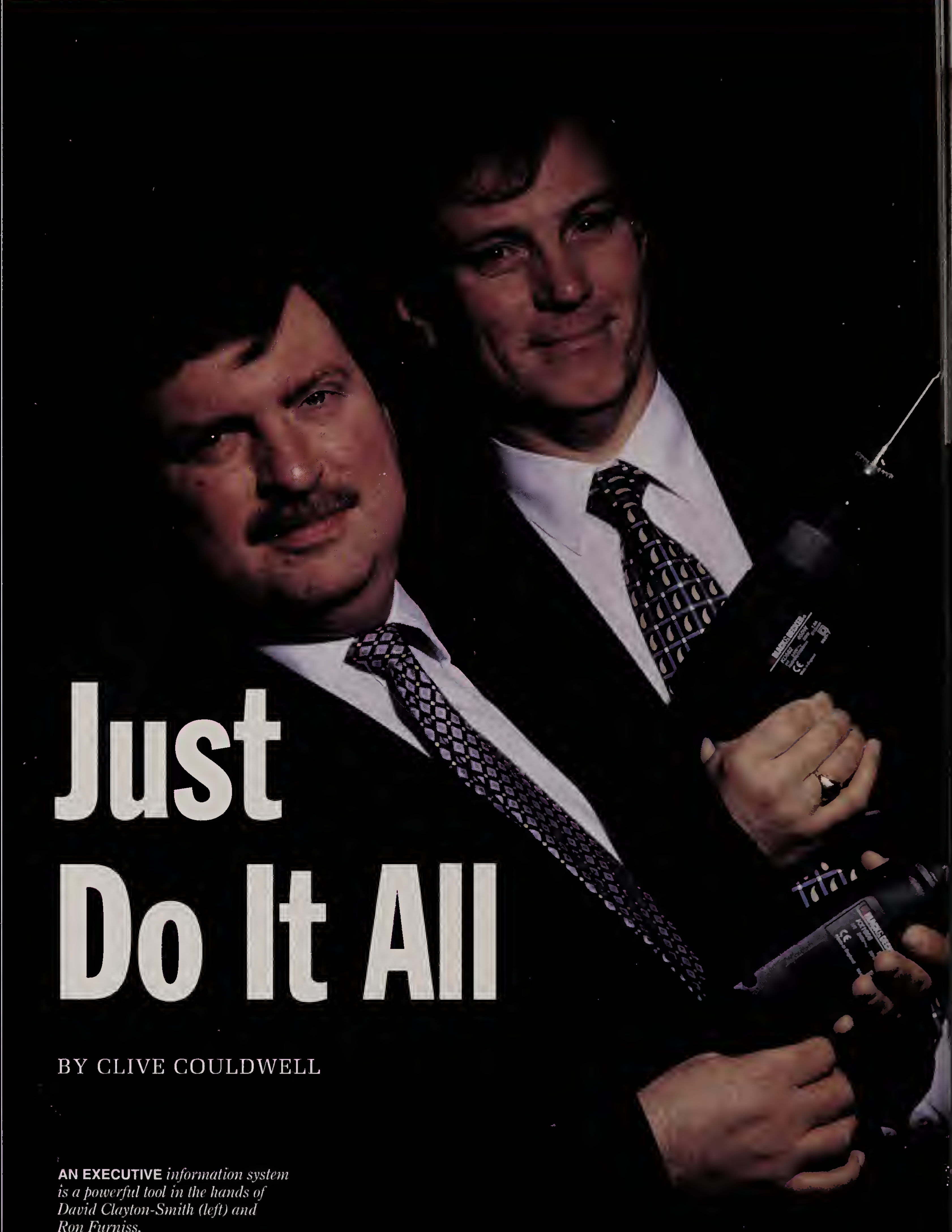

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When the demand for do-it-yourself products sank with the British housing market, Do It All managers recognized that the retail chain couldn't compete by simply slashing prices. To attract customers, it had to offer them products they wanted and provide superior customer service.

IN THE SPOTLIGHT

DO IT ALL LTD., DUDLEY, ENGLAND

Business: Do-it-yourself retailer; number three in the United Kingdom

Revenues: £380 million (approximately $580 million U.S.)

Personnel: 5,000 staff; 50 senior and middle managers; 70 IS staff, two involved with EIS

Competition: B&Q, Texas DIY Ltd./Homebase DIY Ltd.

DO IT ALL LTD. IS ON THE MEND. AFTER FOUR YEARS OF hard work and self-analysis, this well-known British retailer has realized that survival in the United Kingdom's highly competitive home improvement market depends on two things: making sure its senior executives can actually "see" how their business is performing and offering its customers what they really want.

That's a far cry from how it used to be. Headquartered near Birmingham in the town of Dudley, England, Do It All has seen some tough times. Created in 1990 by the merger of Britain's W.H. Smith Group PLC and Payless DIY Ltd. do-it-yourself (DIY) shops, Do It All suffered when consumer demand for home improvement products fell through the floor.

PHOTOGRAPHY BY STEPHEN DODD / LIAISON INTERNATIONAL; ILLUSTRATION BY JE[illegible] PELO

Remarkably, no one had seen the downturn coming. In the 1980s, the U.K. economy boomed, and it seemed as if everyone was turning a huge profit by fixing up their homes and selling them. "The philosophy was, it's good to invest in your home," says Ron Furniss, Do It All's director of IT and logistics. "You'd get your money back when you sold it, and you'd stand out from the neighbors." A U.S. retailing concept—the suburban DIY store—swept the United Kingdom, capitalizing on the home improvement fad. A plethora of new DIY retailers enjoyed high margins as they expanded rapidly to soak up demand. Products sold themselves, without much help needed from sales clerks.

BUSINESS CHALLENGES

- Differentiate its home improvement offerings in a slow British housing market
- Tackle the company's excess retail capacity

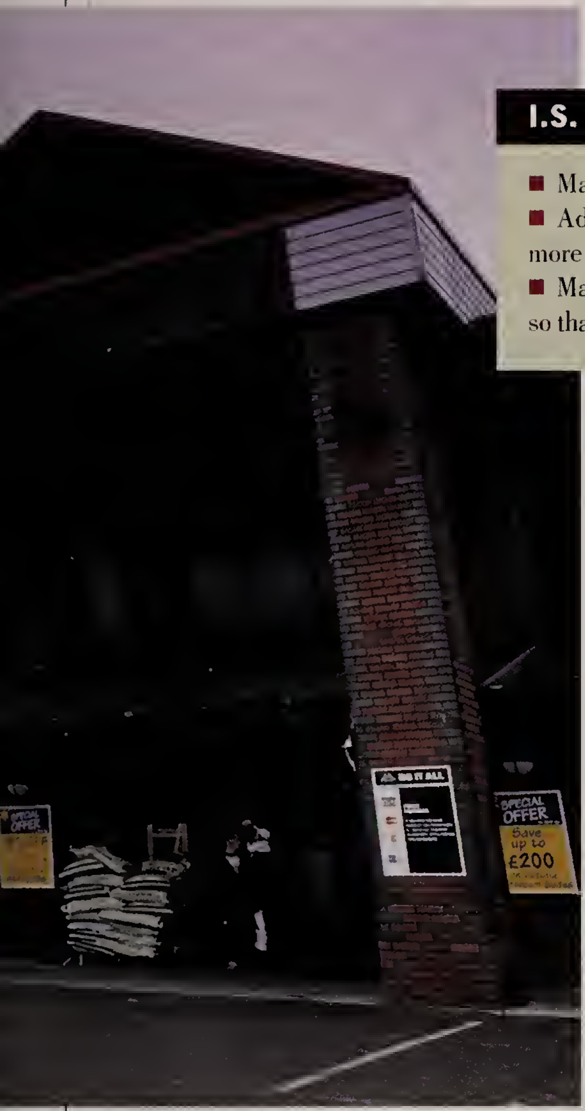
TO KEEP *do-it-yourselfers coming back, Do It All is focusing on offering better customer service.*

But at the end of the 1980s, the U.K. economy overheated, and the government raised personal taxes to curb spending. As companies went bust, people lost their jobs and, with them, disposable income. A reduction in mortgage relief—a tax break many Britons depend on when buying their first homes—discouraged people from entering the housing market. Demand for home improvement products suddenly slumped.

In 1991, DIY chains started to discount prices heavily just to keep customers. Along with competitors Texas DIY Ltd. and B&Q, Do It All was "having weekends where we'd take 20 to 25 percent off everything across the store," recalls Furniss. "The only way you could tell the difference between DIY retailers was where one offered a bigger discount than the other."

By early 1992, Do It All had had enough. The company got rid of its senior management team, who had been responding to the competition rather than calling the shots, and appointed a new managing director and five-person board (including Furniss). The new management quickly realized that a discounting strategy would only go so far. "We couldn't continue like that," says Furniss. "We had to find some other way of making ourselves stand out from our competitors, so we took a fundamental look at our business and the marketplace to decide how we could reposition ourselves." They decided to tempt wallets and purses through Do It All's doors by focusing on customers' service needs. "For us, customer service became the carrot," says Furniss. So, in the spring of 1992, the new board began work on a five-year plan to deliver high-quality customer service and give Do It All managers the ability to monitor the day-to-day mechanics of the business.

The plan's most important aspect, which Do It All informally christened the "customer offer," mandated an overall emphasis on customer service that encompassed the whole of the company's business, from interac-



I.S. STRATEGIES

- Match IT more closely with the business
- Adopt Unix and PC-based platforms to create more flexible information systems companywide
- Make systems easy to use and multidimensional so that data can be cut and sliced as needed

tions with customers through the logistics of supplying its 193 stores with products. That meant revamping Do It All's outdated store layout by grouping like products to make them more accessible to shoppers, hiring more sales staff, providing training in basic selling skills and product knowledge, and automating back-office store administration to free staff to serve customers. In addition, the five-year plan set performance objectives for its executive and managerial teams: encourage Do It All to be more proactive in the market rather than wait and see what the competition does, build up Do It All's image and make the business more competitive.

To measure progress toward those objectives and provide senior managers with a big-picture view of the business, in March 1994 Do It All installed Planning Sciences International PLC's Gentia, a multidimensional executive information system (EIS). An EIS shows key performance data about each section of a company and automatically builds a rolling, up-to-date profile of a business. In addition to reducing huge amounts of information to the essential facts, an EIS allows a manager to look beyond summaries to obtain the finest level of detail about a particular product, department or customer. A "balanced scorecard" forms the core of the Gentia system. This balanced scorecard—so-called because it measures qualitative and quantitative information—illuminates cause and effect by showing how results in key areas of the business are related to the way the organization is working.

Do It All's senior team is relying on Gentia because it needs to close 60 of the most unprofitable stores in the chain and make those it retains more profitable. To help spot where the company isn't making money, the system is tracking five main areas of performance: traded performance (which includes information on sales and productivity); marketplace information (market share, marketing spending and profitability); financial measurements (profit, cash flow, costs); internal development (which includes the progress being made on managers' performance objectives); and customer satisfaction (market research and other survey findings).

"These decision-support applications summarize information in almost any form we want," says Furniss. "We can even look at the performance of a product group in a re-fitted store and compare it with the same group in a store that hasn't yet had a re-fit," he says. "This type of flexibility means we can get a really good picture of the business at any one time as well as forecast and plan accurately."

The system is also helping Do It All with the difficult task of pinpointing competitors' weaknesses. Retailers sometimes blanket a range of products with special offers, thinking they've got to fight off competition across the whole product portfolio. Using the EIS, Do It All's managers can avoid this blunderbuss approach by discounting only when necessary.

> **"These decision-support applications summarize information in almost any form we want. This type of flexibility means we can get a really good picture of the business at any one time as well as forecast and plan accurately."**
>
>
>
> *–Ron Furniss*

"Because store information is now being fed back into the company's databases, the system is helping us keep better control over the supply chain and stock management within the business," says Furniss.

"Monitoring stock levels, we look at information in much more detail, by store and product grouping, to identify how stocks are performing. If they're not doing so well, you can jump down into a finer level of information stored in a larger database where we can investigate some of the reasons why."

> **"I'm in at 7:30 each day and straight into the EIS to look at the figures. It's a ritual for me. I'm able to manipulate the figures and find the underlying trends more quickly."**
>
> *–David Clayton-Smith*

For example, Do It All uses the EIS to keep a close eye on its Price Promise, a special offer that discounts products if customers find them for less in competitors' stores. "It identifies the amount of money we're giving away," says Furniss. "That wasn't really appreciated until the system started reporting it." The EIS also records list versus selling price across the business and highlights any significant differences between the two. "We set certain limits about how much we can afford to give away and the system traffic-lights significant exceptions," says Furniss.

Marketing and Merchandise Director David Clayton-Smith has been an early user and executive sponsor of the Gentia system. He is quick to realize the benefit to sales and marketing from that kind of drill-down analysis: "I'm in at 7:30 each day and straight into the EIS to look at the figures. It's a ritual for me," he says. "I'm able to manipulate the figures and find the underlying trends more quickly than I would normally have been able to do." Before the system's introduction, Clayton-Smith had to wade through bits of paper that he received by midday at the earliest. Now within five minutes, he can see what happened overnight.

"The information is delivered when I need it," he says. "By the 8:30 meeting, we've highlighted some of the areas where we've got some sales or supply problems, and we can agree upon a plan of action before the office has opened."

The design and implementation of the system involved the usual compromises between the outrageous demands and somewhat unrealistic expectations of the users and the practical logic of the IT professionals. "Frustrations did arise from my side, largely because my staff are buyers and product managers who don't care how the system works; they just want to know the answer," says Clayton-Smith. "Ron spent quite a long time looking at the business and analyzing the requirements of its executives to see exactly what they wanted and what they didn't. He isn't a techie when it comes to IT but a commercial, practical manager, so that was very helpful." Although he observes that it's difficult to build a system that's 100 percent right the first time, Clayton-Smith concludes, "Gentia is a system for the users."

To run the Windows-based EIS and support the company's other customer-focused initiatives, Do It All has replaced the out-of-date ICL System 3980 mainframe at its Dudley headquarters with a more flexible, client/server setup based on ICL DRS/6000 and Pyramid Unix machines. That has enabled links between company headquarters and Do It All retail stores.

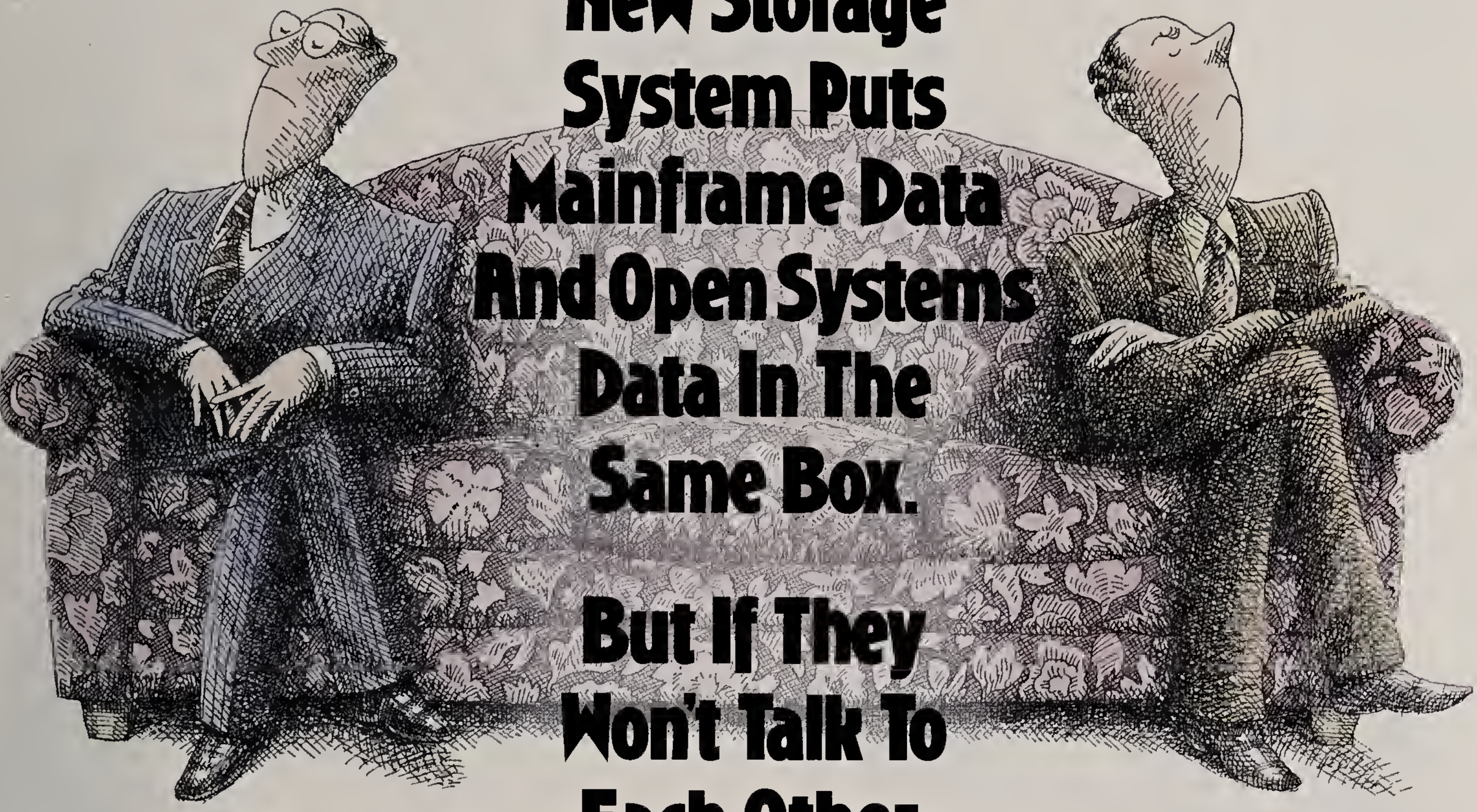
COMING UP

European Spotlight: Eurotunnel

With the new architecture, product availability has improved because store staff can replenish goods by electronically bar-coding orders into a new, central distribution system. The links between store computers and headquarters systems have also made it easier to capture customer data for a new loyalty program database that will enable the company to target shoppers directly with special offers. What's more, customer information is transmitted back to stores, enabling staff to identify customers and view their shopping histories. And multimedia terminals being installed this year in stores will help the store sales staff make more effective pitches. "Although Do It All has areas within the stores now where customers can sit down with sales assistants and talk about opportunities for, say, decorating and the sort of style they'd like to adopt, the system we'll be putting in will help the sales assistant show some of these ideas to the customer," says Furniss. He hopes that because the technology has been developed in-house, it will provide the company with a competitive advantage. "There's nothing around like it," says Furniss.

Now that personnel information and sales data from each store's tills is sent overnight automatically to Do It All's main computer systems, sales staff can concentrate on helping shoppers. "Having removed all the administration from the stores, back-office staff have been released to work *with* customers again," says Furniss. This customer-centric approach appears to be working: Sales are 3 to 5 percent higher—and average spending is up 7 to 10 percent—in stores that have fully implemented the customer offer. Perhaps most important, Do It All has posted a 12.5 percent increase in repeat visits from customers—proof that putting the customer first pays off. CIO

British business journalist Clive Couldwell can be reached via e-mail at 102212.512@compuserve.com.



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Seeing the Forest

As many companies are discovering, product data management systems can be applied enterprisewide to help employees see beyond their own little neck of the woods

BY ED MILLER

Until recently, product data management (PDM) systems that control technical information were used almost exclusively by engineers. But use of the technology has broadened from managing documents to restructuring manufacturing organizations around initiatives like concurrent engineering and collaborative product development. So PDM now touches just about every corner of many manufacturing companies.

As the technology takes on this larger, enterprisewide role, it is coming under the purview of CIOs, who now find themselves in a position to influence the way PDM systems are planned, evaluated, selected and implemented. As a result, many IS executives are hurrying to get up to speed on PDM.

Managing Mountains of Data

PDM systems organize, store and control access to huge amounts of product-related technical information in manufacturing companies, including design geometry, engineering drawings, project plans, part files, assembly diagrams, analysis results, correspondence and bills of materials.

Once considered a convenient tool for organizing CAD files, PDM can now manage the product development process by handling engineering changes, approval processes, product structure data, parts classification and retrieval, configuration management, program management, authorizations, workflow and information exchange.

As an integration tool connecting many different areas, PDM reaches throughout the enterprise, ensuring that the right information is available to the right people at the right time and in the right form. Typical users include designers, engineers, manufacturing engineers, project managers, administrators and purchasing agents. PDM also may be used in sales, marketing, purchasing, shipping and finance.

At every stage of a product's development, PDM improves communication and cooperation among those diverse groups, helping organizations restructure their product development processes and institute initiatives such as concurrent engineering and collaborative product development. By expanding PDM systems beyond the walls of the engineering department, people customarily "left in the dark" during early project phases—such as marketing and manufacturing personnel—can see and contribute to product design and development.

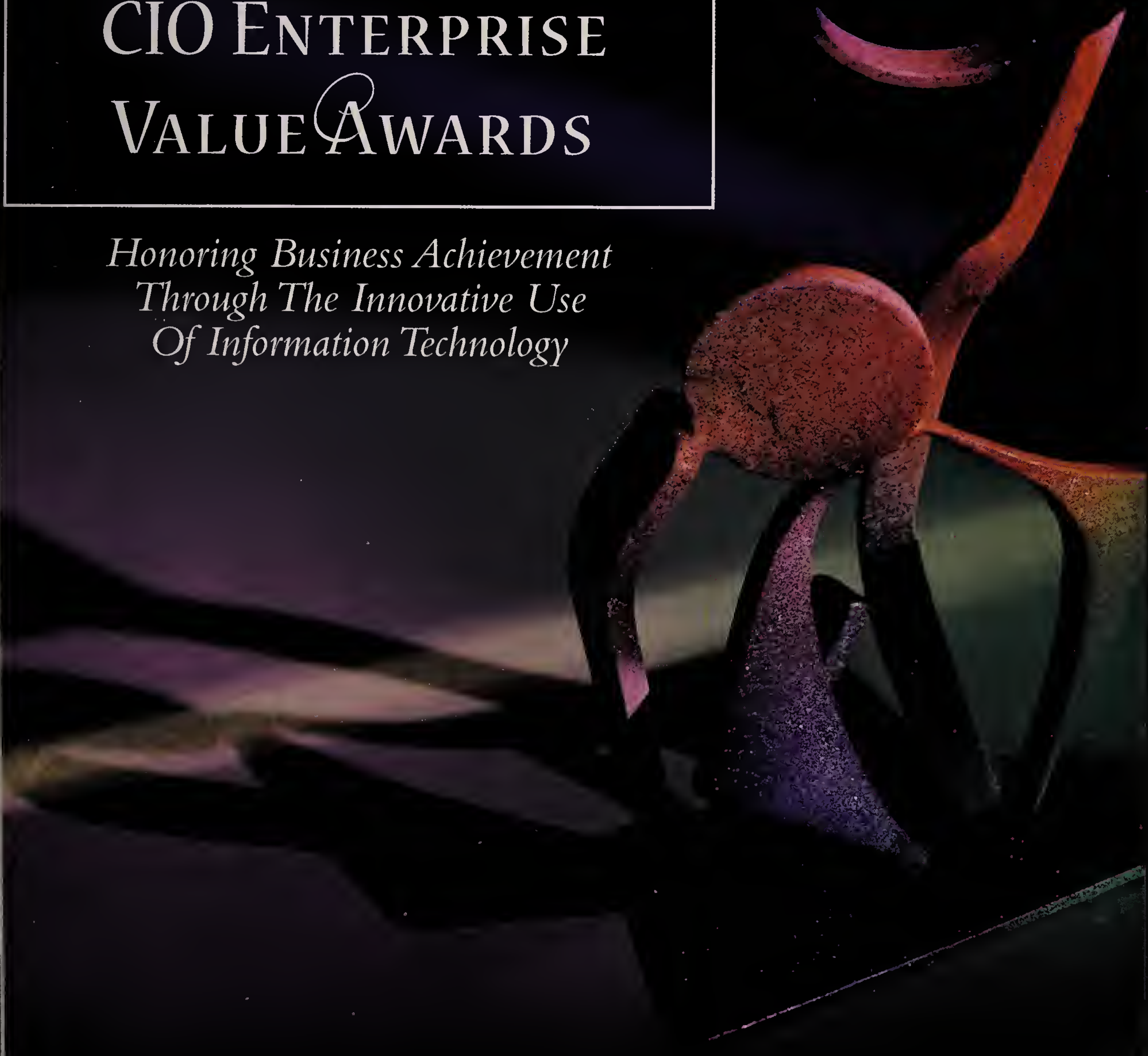
Real Benefits at Real Companies

At numerous manufacturing companies, investments in PDM technology are paying off in lower costs, shortened time to market, higher quality and improved product performance.

APPLICATION FORM

THE FIFTH ANNUAL CIO ENTERPRISE VALUE AWARDS

Honoring Business Achievement Through The Innovative Use Of Information Technology



APPLICATION DEADLINE: JULY 1, 1996

Sponsored by CIO Communications, Inc.

The Enterprise Value Awards℠

Honoring Business Achievement Through The Innovative Use Of Information Technology

SPONSORED BY

CIO

CRITERIA

Winners will be chosen by a panel of independent judges from among entrants who have submitted completed application forms to *CIO* by July 1, 1996. Entries will be judged on the following criteria:

- The extent to which the system adds business value in furthering the organization's strategic objectives
- The measurable financial return the system provides to the organization
- The extent to which IT was key to achieving the overall business solution—the "couldn't have done it without technology" factor
- The quality of collaboration between the business unit and IS organization that is achieved throughout the course of the project

Each finalist will be subject to an in-depth analysis of the nominated system (to be performed by *CIO* or its agents). This analysis, which may require a site visit, will be based on interviews with sponsoring executives and system users and will be designed to substantiate all claimed benefits. Notification of winners will occur in October 1996. *CIO* reserves the right to publish relevant cost and savings figures that establish the claimed ROI of the system; *the willingness to divulge this information for publication is a condition of entry.*

DEFINING VALUE

We invite applicants to consider the broadest possible spectrum of enterprise value. The following list of IT-enabled benefits is intended to help guide applicants' thinking:

- new, innovative and more productive ways of doing business;
- revamped organizational structures or styles of performing the work of the enterprise;
- the ability of the enterprise to enter a new market;
- successful global operation or expansion;
- transformation of the way the enterprise competes within its customary market or of the terms of competition within the market;
- improvement of the enterprise's relationships with its external customers;
- improvement of the enterprise's relationships with its own employees or among its functions (such as marketing, finance or human resources);
- the ability of the enterprise to compete more effectively by adding to the sum of its available knowledge assets;
- leaner and more economical operations.

ENTRY GUIDELINES

- The system must have been operational prior to July 1, 1994.
- Entrants must agree to be featured, along with their systems and organizations, in a *CIO* article.
- Entries must be complete.
- Entries must be on 8.5-by-11-inch paper, one side per sheet.
- The application form may be reproduced.
- Multiple entries from one company will be considered, but each entry must be submitted separately.
- Entries must be made jointly by the IS executive *AND* the business sponsor for whom the system delivers value.
- IT vendors, public relations and advertising companies, consultants and other third parties may *NOT* apply on behalf of another company. They are encouraged to forward this form to the "owner" of the system, or to contact CIO Communications to recommend that an application form be sent to the client.
- All entries must be computer generated or typed; no handwritten entries will be accepted.
- When feasible, an additional copy of the entry should be sent on a 3½-inch disk. Electronic entries must be limited to word-processing and spreadsheet packages that are compatible with Microsoft Word and Microsoft Excel on a Windows or Macintosh platform.

The Ultimate Accolade of Business Success

SCULPTURE BY DAVID SHAPIRO; PHOTO BY RALPH MERCER

HONOR. RECOGNITION. PRESTIGE.

The value of IT. It's real. You know it, and you've proved it. Your organization is actually realizing business value and hard-dollar benefits from IT investments. And although the payback is its own reward, the CIO Enterprise Value Award will bring you, your company and your IT organization the industry recognition you all deserve!

POSITIONING IT AS A BUSINESS ASSET

Yet the CIO Enterprise Value Award goes beyond recognition. It is an opportunity to provide hard, tangible facts about ROI from information technology to the business community at large. It is an opportunity to demonstrate how partnering between business and technology executives can lead to the achievement of strategic objectives. By communicating the payback, *CIO* hopes to encourage other businesses to invest wisely in IT to ensure their survival in a fiercely competitive global market.

DO YOU QUALIFY FOR AN ENTERPRISE VALUE AWARD? FOUR CRITERIA ARE ESSENTIAL:

1. A return of value to the enterprise (see "Defining Value" within this application)
2. A measurable financial return attributable to the system
3. The pervasiveness of information technology —in other words, the strategic objective could not have been met without IT's contribution
4. Collaboration between an IT and business executive

If your innovative solution meets the above criteria, please fill out this Enterprise Value Awards application form. The Feb. 1, 1997, issue of *CIO* will feature profiles of the winning organizations and the executives who have proved that their strategic technology investments have had a positive and sustained impact on enterprise value.

In February 1997, *CIO* will host a special awards ceremony honoring the Enterprise Value Award winners at the annual CIO Enterprise Value Retreat.

For more information, please contact Lisa Kerber at (508) 935-4449.

ENTERPRISE VALUE AWARDS TIMELINE

APPLICATION DUE: July 1, 1996

JUDGES SELECT WINNERS: October 1996

WINNERS ANNOUNCED: October 1996

AWARDS CEREMONY: Feb. 2–5, 1997
at the CIO Enterprise Value Retreat

1. COMPANY/BUSINESS UNIT

▲ NAME OF PARENT COMPANY

CITY, STATE WHERE HEADQUARTERS ARE LOCATED

PUBLICLY OR PRIVATELY HELD?

ANNUAL REVENUES

INDUSTRY

NAME OF BUSINESS UNIT OR ORGANIZATION

CITY, STATE WHERE LOCATED

NUMBER OF EMPLOYEES AT BUSINESS UNIT

2. ENTRANTS

A.

▲ NAME OF ENTERING I.S. EXECUTIVE

TITLE

NAME OF DIVISION, DEPARTMENT OR UNIT

ADDRESS

CITY

STATE ZIP

( ) ( )

TELEPHONE FAX

B.

▲ NAME OF ENTERING BUSINESS-UNIT EXECUTIVE

TITLE

NAME OF DIVISION, DEPARTMENT OR UNIT

ADDRESS

CITY

STATE ZIP

( ) ( )

TELEPHONE FAX

3. SUPPORTERS

Please list four people who are willing to be interviewed with regard to the system, its development, its use and the value returned. At least one should be a member of the technology team that developed the system and should have played a significant role. At least one should be a primary user from the sponsoring business unit. The other two may be from either organization or represent suppliers, customers or others intimately familiar with the system.

A.

▲ NAME

TITLE

( ) ( )

TELEPHONE FAX

REASON FOR INCLUSION

B.

▲ NAME

TITLE

( ) ( )

TELEPHONE FAX

REASON FOR INCLUSION

C.

▲ NAME

TITLE

( ) ( )

TELEPHONE FAX

REASON FOR INCLUSION

D.

▲ NAME

TITLE

( ) ( )

TELEPHONE FAX

REASON FOR INCLUSION

DEADLINE:
JULY 1, 1996

MAIL TO:

ENTERPRISE VALUE AWARDS
CIO COMMUNICATIONS, INC.
492 OLD CONNECTICUT PATH
P.O. BOX 9208
FRAMINGHAM, MA 01701-9208

4. THE NOMINATED ORGANIZATION

Please tell us about your organization (company, business unit, agency) in 500 words or less. Include information on:

- when the organization was founded;
- mission statement;
- major products and services;
- markets served;
- any other data you believe to be relevant in terms of general background.

5. THE NOMINATED SYSTEM

Tell us about the nominated system and demonstrate its importance to the organization by completing the following sections. Please limit your material to two pages.

SYSTEM DESCRIPTION: In one sentence or less, describe the system or IT initiative you are nominating (e.g., order-entry or document-management system; switch to a client/server architecture).

TECHNICAL PROFILE: Briefly describe the technology of the nominated system. Please include the names of major vendors and products. (NOTE: The examples provided here are meant to be illustrative, not all-inclusive.)

- **ARCHITECTURE** (e.g., client/server, mainframe)
- **HARDWARE** (e.g., mainframe/parallel processor, minicomputer/server, PCs, handheld devices)
- **SOFTWARE** (e.g., operating systems, database system, shells, application software)
- **SOFTWARE DEVELOPMENT TOOLS** (e.g., CASE, 4GLs, GUI developers, object-oriented development tools)
- **NETWORK/COMMUNICATIONS HARDWARE, SOFTWARE AND SERVICES** (e.g., modems, routers, e-mail packages, carriers and public networks)

6. BUSINESS IMPACT

Describe the primary business objectives of and value delivered by the IT investment. Please limit this section to five pages.

SCOPE AND IMPACT: Identify the functions (e.g., customer service, manufacturing, planning) that were changed by the system, the nature of those changes and their impact on the business.

STATEMENT OF VALUE: In one or two sentences, describe the business value delivered by the nominated system (please refer to "Defining Value" section on the first page of the application form).

BUSINESS VALUE DESCRIPTION: In detail, describe *how* the system delivers the value identified above. Also describe any added value delivered, whether intentionally sought or serendipitously encountered.

THE IMPORTANCE OF IT: Identify the different components of the overall business change (e.g., business reengineering, downsizing, cycle times). Explain the importance of the IT component to the overall business change. Could the results have been achieved without IT?

COLLABORATION: Describe how the business unit and IS organization worked together throughout the project, from concept to implementation. What were the specific tasks fulfilled by the business unit? The IS organization?

7. QUANTIFYING ROI

Provide a detailed, one-page summary of the nominated system's investment costs (including all upfront development expenses and annual maintenance charges). Also provide estimates of returns (including increased profits, reduced costs and indirect cost-avoidance). Estimates of costs and returns should be made per annum over a five-year period.

8. TRUTH OF INFORMATION/RELEASE

The following release must be signed by both nominating executives if the application is to be considered. *Unsigned releases will invalidate the entry.*

I HEREBY STATE that the information provided is true and complete to the best of my knowledge and belief.

I AUTHORIZE the release and use of, in connection with the Enterprise Value Awards program, any and all materials furnished by me or others at the company contacted for this judging. I understand that information submitted on this application or subsequently gathered during the evaluation and judging process may be used in articles or any other type of publicity relating to the Enterprise Value Awards program.

I ALSO AUTHORIZE the release and use of my name, my company's name and my likeness, including but not limited to any photographs and any recording of my voice or image that may be taken of me for *CIO* Magazine. I agree that no compensation shall be due me or my company for such usage.

I RECOGNIZE that failure to meet these conditions or to provide sufficient material that can be published can cause the application to be rejected at any point in the process at the sole discretion of the sponsors.

1. ______________________________

▲ SIGNATURE OF NOMINATING I.S. EXECUTIVE

____

DATE

2. ______________________________

▲ SIGNATURE OF NOMINATING BUSINESS EXECUTIVE

____

DATE

9. OTHER EDITORIAL OPPORTUNITIES

If you are not selected as an award recipient, are you willing to be contacted for inclusion in other articles in *CIO* Magazine? YES ☐ NO ☐

How did you learn about the Enterprise Value Awards program?

☐ *CIO* MAGAZINE
☐ CONSULTANT
☐ SYSTEMS INTEGRATOR
☐ PR AGENCY
☐ ADVERTISING AGENCY
☐ ACADEMICIAN
☐ IS STAFF MEMBER
☐ OTHER PUBLICATIONS
☐ VENDOR
☐ OTHER (PLEASE IDENTIFY) ______________________________

CHECKLIST

HAVE YOU FILLED OUT...?

☐ Company/Business-Unit, Entrants and Supporters Information

HAVE YOU INCLUDED ON SEPARATE PAGES...?

☐ Nominated Organization
☐ Nominated System
☐ Business Impact
☐ Return on Investment

HAVE BOTH ENTRANTS SIGNED AND DATED...?

☐ Truth of Information/Release

HAVE YOU CHECKED OFF...?

☐ Other Editorial Opportunities
☐ How you learned about the Enterprise Value Awards program?

Congratulations to Last Year's Winners

Brigham & Women's Hospital

John P. Glaser, PhD
Vice President, Information Systems
Jeffrey Otten
CEO

Gensym Corp.

Troy A. Heindel
CIO & Vice President, Support Services
Lowell Hawkinson
Chairman & CEO

McDonnell Douglas Helicopter Systems

Andrew Miller
Director, Information Technology
William R. Ringer
Business Development Representative

Rockwell International Corp.
Space Systems Division

Kodumudi S. Radhakrishnan
Division Director, Information Management
R. M. Glaysher
Vice President & General Manager

Telogy Inc.

Sateesh B. Lele
CIO & Senior Vice President
Anthony M. Schiavo
Chairman & CEO

United HealthCare Corp.

James P. Bradley
former CIO
Paul LeFort
CIO
Kathy Walstead-Plumb
Senior Vice President, Group Services Administration

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The Innovative Use Of Information Technology

CIO

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"Excuse me,
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Did she say connector instead of phone? Well, if she's from AMP it's understandable, because we've asked our people to think of anything that provides connectivity, even between people, as connectors. Usually thought of as pieces of plastic and metal sitting on circuit boards or ends of cables, connectors are being redefined. We're broadening their definition to include the circuit boards and cables, seeing connectors as entire signal paths – from where they're generated, to where they're received. Redefining connectors has led us to add certain technologies to our company, like circuit boards, cable assemblies, sensors, optoelectronics, and wireless components. And we bring these technologies together to create proven connectivity subsystems that our customers can drop into their designs – giving them a better way to solve problems brought on by faster chips, shrinking form factors, and shorter development times. So while we don't expect everyone to think of phones as connectors, our customers benefit because our people do.

Connecting
at a
HIGHER
level.

AMP Incorporated, Harrisburg, PA 17105-3608. Contact your regional center: USA 1-800-522-6752.
Canada 905-470-4425. England 44-1753-676800. Singapore 65-482-0311. Japan 81-44-813-8502.

AMP

One recent large investment in PDM is Ford Motor Co.'s licensing of the Metaphase program from Structural Dynamics Research Corp. (SDRC), undertaken to support the automaker's concurrent engineering effort to streamline product development. Another notable example is the use of IBM Corp.'s ProductManager by aircraft engine manufacturer Pratt & Whitney as a way to exchange information with a consortium of aircraft companies.

One of the more extensively integrated PDM systems is installed at Schlumberger Ltd.'s Oilfield Services Group, which initiated a program in the late 1980s to more efficiently manage information and workflow throughout the entire product life cycle. Schlumberger's goals included shortening product development cycles and speeding time to market by enhancing information flow early in the design phase, simplifying administrative processes and cost accounting, and increasing horizontal work flow.

Sherpa Corp.'s Sherpa PDM system was used to execute concurrent engineering at Schlumberger. Subsequently, product data stored in Sherpa's electronic vault was integrated with the manufacturing database of Schlumberger's newly installed MFG/PRO system from QAD Inc. to allow exchange of design and production data. The initial rollout of the integrated system to sites in France, Germany, Japan, North America and Norway took a year and a half and resulted in a 33 percent reduction in IT costs.

PDM Market Growth

Today, PDM is the fastest-growing technology in the engineering-manufacturing market, with some form of the technology being implemented (or considered) at nearly all major companies in a range of industries including automotive, aerospace, office equipment, industrial machinery, sports equipment, agricultural machinery and construction equipment. Its widespread use in manufacturing is prompting organizations in other industries (such as transportation, utilities, health care, construction and architecture) to use PDM to manage their productive output.

CIMdata Inc., a consulting and market research company specializing in PDM and computer-aided design/computer-aided manufacturing (CAD/CAM) systems in Ann Arbor, Mich., estimates PDM market revenue (software and services) for 1995 at more than $600 million and forecasts the market to increase at a compound annual growth rate of 27 percent. By 1999 market size is expected to reach almost $1.6 billion. Continued strong growth is expected to be driven by technical advancements as well as increasing awareness in the value of systems that improve workflow and communication throughout the enterprise.

As an integration tool connecting many different areas, PDM reaches throughout the enterprise, ensuring that the right information is available to the right people at the right time and in the right form.

You Can't Buy PDM

Some industry analysts view PDM as closely associated with computer-integrated manufacturing (CIM), which began in the mid-1970s as a way to link and coordinate individual areas of the complete manufacturing enterprise, including design, drafting, numerical control (NC) programming, robotics, process planning and machine tools. Because that goal was overly ambitious in trying to develop an all-inclusive system in one fell swoop, CIM took on negative connotations as a concept that never materialized. In contrast, PDM is a step-by-step approach to providing data integration and information flow necessary for achieving integrated manufacturing. It works by tying together existing systems including CAD, CAM and materials requirements planning (MRP) applications.

A three-pronged approach facilitates the deployment of PDM enterprisewide. First, PDM systems generally feature a central facility that acts as an overall coordinator of operations and connects individual applications. Local data managers developed by commercial suppliers to provide the best access to information in their separate applications make up the second part of a PDM system. Integration links between these two components constitute PDM's third component.

No single product can possibly provide all these functions. Rather, enterprise PDM systems are built from multiple software packages from different vendors. Thus, users wanting to implement PDM can't just buy a system off the shelf but must instead have a clear vision of what they want to accomplish, an understanding of their own company's products and processes, and a willingness to work with vendors in building a composite system from many commercial offerings.

Examples of local data managers in CAD/CAM developed specifically for handling the suppliers' particular design files include Catia Data Management (CDM) from IBM, PDM from SDRC, Pro/PDM from Parametric Technology Corp. in Waltham, Mass., and Design Manager from Matra Datavision Inc. in Andover, Mass. Facility programs for tying these applications together include many of the traditional PDM systems such as Metaphase (from SDRC, Control Data Systems Inc., Groupe Bull, Formtek Inc., Intergraph Corp. and Siemens Nixdorf Information Systems Inc.), IBM's ProductManager, Sherpa, EDS/Unigraphics' IMAN, Computervision Corp.'s Optegra, Eigner + Partner GmbH's CADIM/EDB, Workgroup Technology Corp.'s

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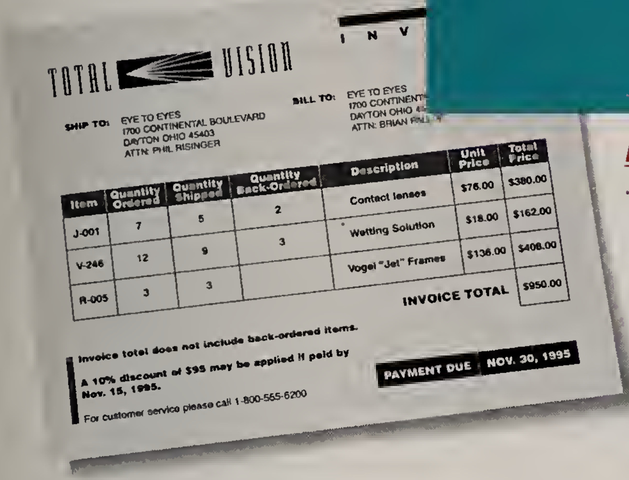

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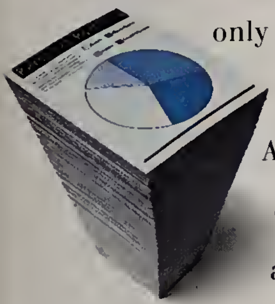

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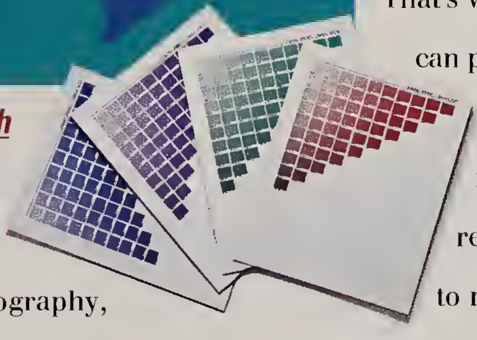

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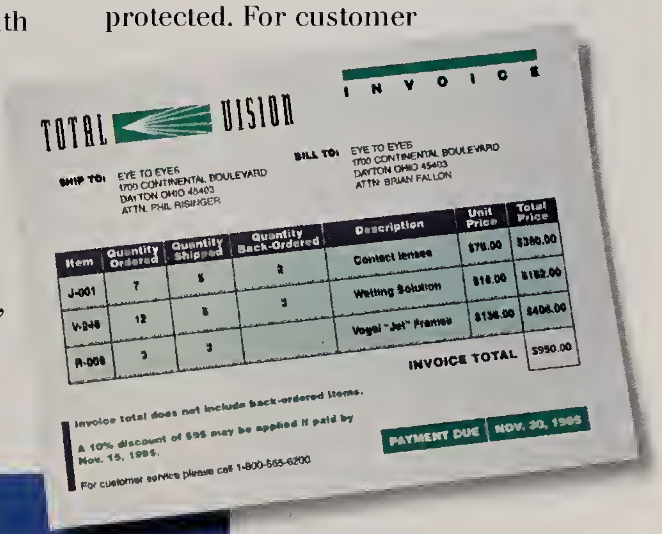

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CMS and Adra Systems Inc.'s Matrix. Those packages are often supplemented with specialized software such as component parts management systems from vendors such as Cadis Inc. in Boulder, Colo., and Aspect Development Inc. in Mountain View, Calif.

Shifting Responsibilities

Since the early 1980s, when the first commercial systems were introduced, PDM has traditionally been controlled by engineering departments. But because of the expanding scope of the technology—and tremendous bottom-line benefits—PDM at a growing number of companies is being put under the jurisdiction of CIOs because they have the overall perspective, responsibility and authority for corporate computing.

Given this overall perspective, CIOs already familiar with technologies such as groupware, workflow and data warehousing might think PDM has a familiar ring to it. In fact, these technologies, which are marketed as standalone products, overlap considerably with the core capabilities of PDM. What makes PDM different is that it is a conglomeration of these and other technologies in an integrated system for handling technical information and engineering workflow for product development. Data warehousing, for example, is implemented as vaulting technology in PDM. Similarly, workflow is monitored by process management modules within PDM. Groupware packages such as Lotus Notes, which lets several people work on the same project, can be added to enhance the communication and distribution capabilities of a PDM system.

The implications of the shift in who is implementing PDM are enormous, mainly because of the IS background most CIOs bring to their positions. Having worked closely with MRP over the years, for example, CIOs generally have greater insight into the increasing overlap of this technology with PDM and thus are in a good position to resolve turf battles about data ownership.

A SAMPLING OF PDM VENDORS

PDM software is sold by more than 80 companies, with no one company dominating the market. The largest portion of total market revenue is generated by a group of top vendors that includes the following companies:

Adra Systems Inc.	Matrix	*508 937-3700*
Alpharel Inc.	Enabler, Trimco/Pro	*619 625-3000*
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Formtek Inc.	Formtek TDM, Metaphase	*415 842-3000*
Hewlett-Packard Co.	HP WorkManager	*800 637-7740*
IBM Corp.	ProductManager	*914 765-1900*
Intergraph Corp.	I/PDM, DM2, Metaphase	*205 730-2000*
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The CIO's influence also makes a big change in the way PDM systems are evaluated and selected. While engineers tend to concentrate on particular application features, IS executives generally focus on the technology underlying the system, spending more time investigating system architecture, hardware support, software support and overall maintainability. The purchase of PDM systems is thus evolving in many companies from strictly an "application solution" orientation to one with a greater technology focus.

Hot Trends

Platform support in the PDM industry has undergone tremendous change in the past few years as the power and economy of desktop systems has increased their popularity over mainframe-based systems. Although Unix continues to be the primary server platform for most PDM systems, a big move is underway to provide client support for PCs and Macintoshes because of their affordability and ability to run a wide range of general office software such as word processing and spreadsheet programs.

Because PDM systems are used by a diverse set of people with various computer skill levels, ease of use is an important factor when choosing the software. As a result, PDM vendors have put built-in tailoring capabilities into systems that make them much easier to customize to the user's own application, industry and company. An automotive company, for example, may use these capabilities to add to data models such attributes as miles per gallon or braking times, or to incorporate terminology for processes or products used only at that particular company. In the past, much of this was accomplished through in-house software development that was both expensive and a long-term support headache.

One of the hottest new trends in the industry is the impact of Web technology on PDM systems. Front-end user interfaces based on Web browsers such as Netscape Communications Corp.'s Netscape Naviga-

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tor are being tied into PDM systems and announced by almost all of the major PDM suppliers. The technology is being developed at the behest of the user community, which sees Web technology interfaces as inexpensive, consistent and understandable to people in all levels of the organization.

One exciting use of Web technology is displaying information from multiple sources on the screen simultaneously. For example, data from the PDM system can be displayed along with data from MRP systems and other legacy systems. Although the databases aren't necessarily truly integrated, the display capability is a powerful tool for opening up communication and information access.

Another trend in PDM is the continued movement away from older relational database management systems toward object-oriented database management technology. The object approach will make PDM systems more readily adaptable to rapidly changing computer environments and also better suited to handling the distributed databases expected to become more prevalent in the future.

PDM is a step-by-step approach to providing data integration and information flow necessary for achieving integrated manufacturing. It works by tying together existing systems including CAD, CAM and MRP applications.

Document management and PDM functions will undoubtedly continue to merge, giving users a growing number of increasingly powerful products as vendors include capabilities from both areas in their packages. PDM and MRP systems also are moving closer together as functions overlap.

In the coming years, PDM vendors will continue scrambling to keep up with these and other advances and shifts in technology. Meanwhile, companies that successfully manage the organizational and process restructuring often necessary to gain the full advantage of PDM will benefit from increasingly affordable systems with rapidly increasing functionality. CIO

Ed Miller is president of CIMdata Inc., a consulting and market research firm in Ann Arbor, Mich. He can be reached at 74012.1122@compuserve.com.

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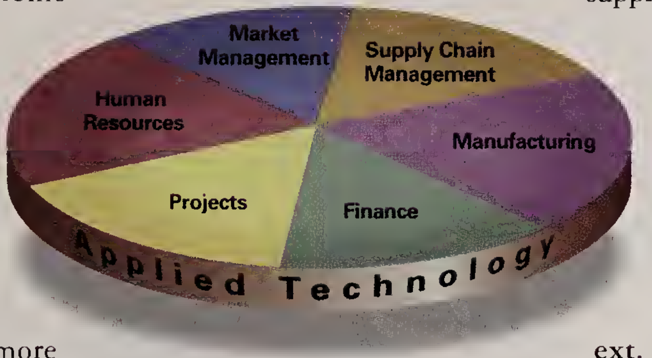

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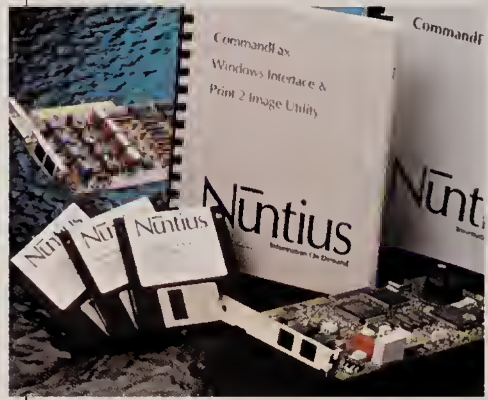

But now everything is available from a single source—Pure Data Ltd.'s SatisFaxtion on Demand server. SatisFaxtion enables anyone with a touch-tone telephone and a fax machine to retrieve thousands of documents, price lists and reports as faxable documents, as well as enabling automated delivery of information to sales and product support personnel. Each system includes Rhetorex voice adapters, which plug into PC cards and prompt callers through a menu of choices, and Nuntius's corp. CommandFax fax-on-demand software.

The system is available in three configurations. SatisFaxtion on Demand Gold, an entry-level standalone fax-on-demand server, can receive up to 10 calls and send up to 80 fax pages per hour. SatisFaxtion on Demand Platinum is a midrange package designed to receive up to 30 calls and send up to 200 fax pages per hour. SatisFaxtion on Demand for fax servers can be added directly to existing fax servers from Optus Software, Castelle, Cheyenne Software, Alcom, Delrina, Intel, Traffic Software or Rightfax. Prices range from $ 1,699 to $ 3,399. Call 800 661-8210 to try the SatisFaxtion on Demand demonstration system or 719 522-1700 for further information.

One-Stop OLAP

Online analytical processing (OLAP) has typically forced a choice between relational and multidimensional approaches. Now users can have it both ways. OLAP allows users to leverage the vast amounts of information in data warehouses to identify trends and patterns, run models and simulations, and otherwise analyze data. Oracle Express Server and an Express version of its Oracle Transparent Gateway enable users to examine data using either relational databases or multidimensional OLAP engines. With Oracle Transparent Gateway for Express, users can access data in the Oracle Express Server multidimensional engine through any standard SQL front end as if they were accessing an Oracle7 relational database. Users can also access the data as part of a distributed query, in which data is located in multiple locations such as the Express Server, Oracle7 and any relational or legacy database supported by Oracle gateways.

Express Server can generate SQL queries to any major relational database, and optimize them on the fly. It also transforms the data into multidimensional arrays without having to store data permanently in the Express Server engine. That approach, known as relational OLAP, lets the multidimensional engine act as a data cache while providing users with all of Express's OLAP capabilities. Pricing for Oracle Transparent Gateway for Express has not been determined; Oracle Express Server is priced at $1,495 per user. For more information, call 415 506-4176.

Remote Control

Printer management in distributed environments can be a major stumbling block to client/server implementation. But the IBM Printing Systems Co. hopes to ease the frustration with Printing Systems Manager (PSM), a Unix-based software tool that implements industry standards to manage printing in distributed environments.

PSM, which runs on IBM's RISC System/6000 under the AIX operating system, enables management of a printer network from any administrative client, allows use of existing hardware resources and provides print event monitoring. The PSM server can be networked to any number of different vendors' Unix systems. Users can submit print jobs using AIX, OS/2 and Windows clients or via a TCP/IP gateway, as well as execute print jobs from the desktop to any networked printer. An optional PSM GUI enables complex administration of larger and more diverse enterprises by a single administrator.

PSM manages print queues, print servers, schedulers, and logical and physical printers. To control access to those resources, PSM uses the Open Software Foundation's Distributed Computing Environment security interfaces. Customers can control printing on a single LAN and globally expand the scope of the system to accommodate more printers, servers and clients. An asynchronous event-notification feature alerts administrators or users when they need to take action, such as when a printer is out of paper or a queue is backlogged. PSM also enables redirection of critical print jobs to available printers.

PSM for AIX requires AIX Version 3.2.5, AIX DCE Base Services Version 1.3 and TCP/IP running on an RS/6000 Model 340H or higher. Customers who have already installed NetView for AIX may run PSM at the same workstation. The PSM for AIX base package is priced at $2,495 and includes a single server license and an unlimited number of desktop clients. The PSM GUI costs $4,995. For more information, call 303 924-6300.

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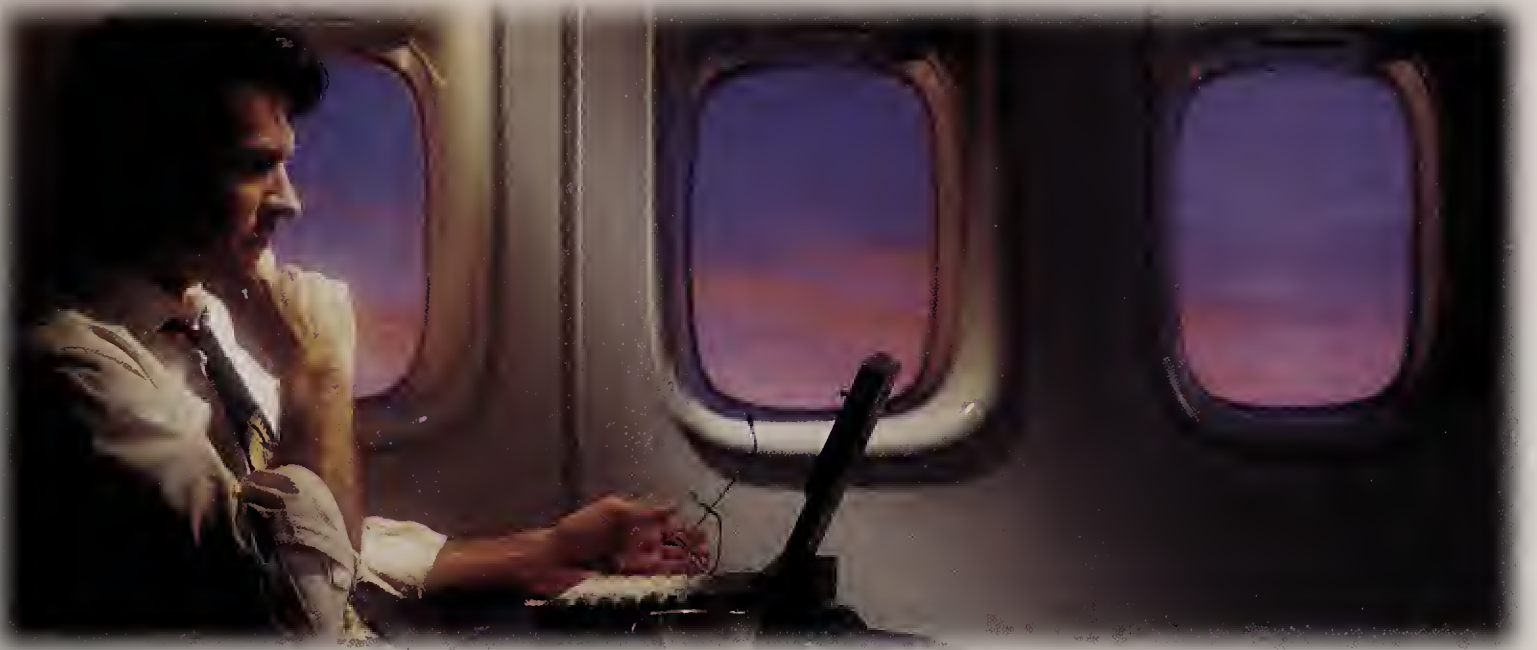

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People Power

Xerox Corp.'s first foray into client/server computing has reaped financial and personnel gains

When a personal vision dovetails with an organization's strategic goals, the results can be impressive. Xerox Corp.'s PeopleNet, a PC-based human resources information system (HRIS) is a case in point. In 1992, Thomas Stone, the progenitor of Xerox PeopleNet, initially envisioned the system as an ideal way to release HR professionals from the yoke of mundane administrative tasks. At the same time, CEO Paul Allaire established employee empowerment as one of Xerox's strategic goals. By giving employees immediate access to their personnel information and allowing department managers to make HR decisions, Xerox PeopleNet has ably satisfied both camps.

For years, Stone (who was an associate director of corporate HRIS in 1992) believed that functions such as hiring, awarding bonuses and granting promotions—traditionally HR's exclusive domain—could be handled more efficiently by department managers. As for HR personnel, all too often they were handcuffed by paperwork that left them little time to use their special skills. Counseling managers on ways to handle employee problems was the kind of high-level task often placed on the back burner.

With backing from Vice President of Corporate Human Resources Anne Mulcahy, a task force of HR and IS employees reviewed Xerox's needs. The task force opted to develop an in-house HR system. Prototyping began in mid-1993, with official rollout in January 1995.

According to Xerox PeopleNet Development Manager Karen Mihara, one goal of prototyping was to prove that Xerox PeopleNet's concept was viable: As a client/server application, Xerox PeopleNet would be the company's first Windows-based graphical user interface (GUI) implementation.

A data warehouse that contains personnel data such as name, address and salary is central to Xerox PeopleNet, which currently supports 27 applications covering such areas as training, retirement fund performance and a corporate phone directory. In addition, employees can access general business information such as stock quotes.

One area in which Xerox PeopleNet is having a big impact is the internal job posting process. Hiring managers used to fill in job description forms and send them to HR, where the information was reentered on posting forms. It often took a week before employees could view listings. Now the hiring manager opens the Xerox PeopleNet application on the desktop, creates the posting on an online form and posts it immediately on a central electronic bulletin board. Any interested Xerox employee can then print an application form and submit it to the hiring manager on paper. Soon, however, paper will be eliminated, and internal applications will be processed entirely online.

According to Mihara, managers love the system because it gives them control over the hiring process. As for employees, they can browse through listings conveniently and in confidence and use a feedback feature to suggest new ideas and improvements. As a result of one suggestion, employees will soon be able to monitor their profit sharing and retirement plans and change their contributions right from their desktops.

Mihara puts Xerox PeopleNet costs at $2 million. Yet by enabling online distribution of benefits manuals and other documents, Xerox PeopleNet eliminates at least $1.5 million in printing costs. Planned enhancements that will eliminate more paper-based processes will save another $1.1 million annually. But perhaps Xerox PeopleNet's greatest benefit is yet to come. The gradual way the system has evolved continues to influence its expansion. With client/server, "you don't have to go out and project maximum potential usage and then find the biggest box necessary," asserts Mihara. With its built-in modularity that can accommodate user feedback, the end of Xerox PeopleNet is not in sight.

–Carol Zarrow

VITAL STATISTICS

Organization: *Xerox Corp., Stamford, Conn.*

Application: *General business and human resources information system*

Technologies: *Sun Microsystems Inc. SparcServers running Sun Solaris with TCP/IP and Novell protocol support; OpenLink Software's Object Broker and Oracle Database Agent; IBM-compatible client machines run Windows and applications written in Microsoft's Visual Basic*

Scope: *10,000 U.S.-based salaried employees*

Sponsors: *Anne Mulcahy, vice president of corporate human resources; Patricia Wallington, corporate vice president of global process and information management and CIO*

Objective: *To empower employees and increase productivity by providing personnel and business information to decision makers*

Payoff: *Eliminates $1.5 million in printing costs; projected savings of $1.1 annually with the elimination of paper-based forms and processing*

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System Requirements: IBM 386 or later compatible PC with at least 4MB of RAM, Microsoft Windows 3.1 or later, a high density 3.5" floppy drive, and a modem of at least 9600 baud. Supports TCP/IP.

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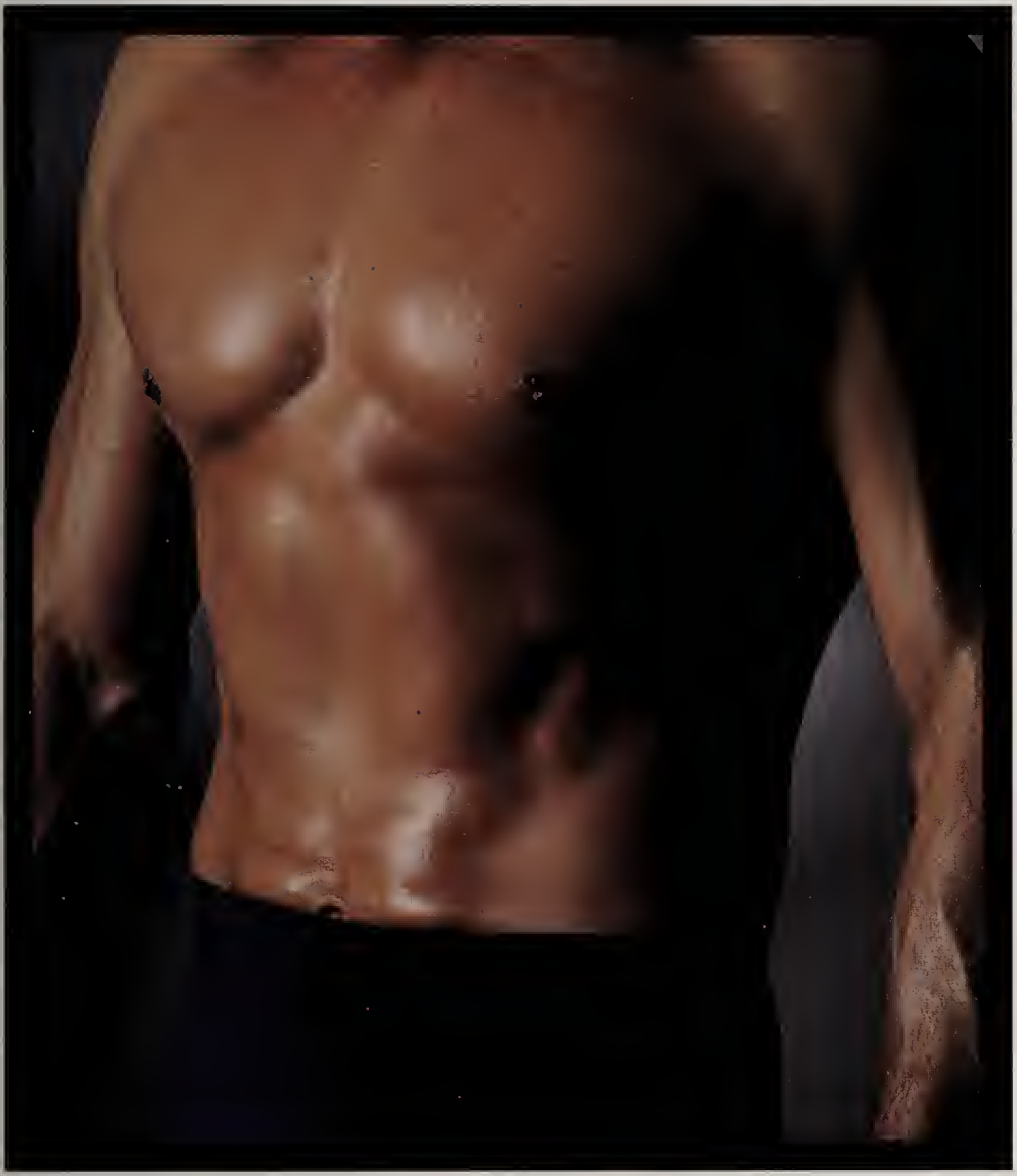

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